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ABSTRACT

The purpose of this study was to develop performance measures that will assist federal agencies to assess the quality and usefulness of their World Wide Web sites and to improve public information access service of those Web sites. The study was sponsored jointly by three federal agencies: the Defense Technical Information Center, the Energy Information Administration, and the Government Printing Office (GPO). The investigators conducted a literature review, reported in Chapter 1. They undertook an analysis of laws and policies affecting Web site performance measures, reported in Chapter 2. They met with agency representatives individually and collectively and analyzed documents provided by the agencies, as Chapter 3 explains. Chapter 4 describes the performance measures that emerged from the study. Chapter 5 sets forth key issues and recommends next steps. Appendices include: criteria for the evaluation of federal Web sites; Web site performance measurement and evaluation for GPO Access; and a proposal to study agency compliance with federal Web site policies. (Contains 27 references.) (MES)

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PERFORMANCE MEASURES FOR FEDERAL AGENCY WEBSITES:

FINAL REPORT

To Sponsoring Agencies:
Defense Technical Information Center
Energy Information Administration
Government Printing Office

by

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PREFACE

The U.S. Energy Information Administration, the Government Printing Office, and the Defense Technical Information Center funded the study that resulted in the information reported here. The study was conducted between March, 2000 and September, 2000. Given the federal government's emphasis on developing E-services, E-commerce, and E-resources via the networked environment, these three agencies took a leadership position to support a study that would assist them (and hopefully other agencies) to better assess the services provided via their websites.

The authors appreciate the assistance participants from these agencies provided in developing assessment techniques, reviewing their agency procedures and activities, and working directly with the investigators. This effort, however, should be considered as a first step in developing assessment techniques and specific performance measures to assess web based services.

The investigators wish to acknowledge the assistance of others who contributed to completion of this study. Bruce Fraser, Bruce Smith, and Goldie Burton, all at Florida State University, Information Use Management and Policy Institute, contributed to early drafts of portions of this report.

The investigators believe that the findings presented in this study will be an important means to move forward in developing future assessment techniques and performance measures. The rapidly changing networked and web environment means that assessment techniques and performance measures must also continue to evolve. Beyond the efforts reported here, much work remains to be done in this area.

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October 1, 2000

TABLE OF CONTENTS

Preface

Executive Summary E-1

Chapter 1 Introduction 1-1

Chapter 2 Federal Policies Affecting Website Development and Management 2-1

Chapter 3 Review of Agency Practices 3-1

Chapter 4 Proposed Performance Measures 4-1

Chapter 5 Key Issues and Next Steps 5-1

Appendices

Appendix A Criteria for the Evaluation of Federal Websites A-1

Appendix B Website Performance Measurement and Evaluation for GPO Access B-1

Appendix C Example: Proposal to Study Agency Compliance with Federal Website Policies C-1

Performance Measures for Federal Agency Websites

EXECUTIVE SUMMARY

1.0 INTRODUCTION

As federal agencies move to the Web environment as a primary means to disseminate information to the public, they require performance measures concerning the extent to which their websites are successfully presenting and conveying the government information the public needs to access and use. Performance measures for rating the success of federal agency websites in meeting their goals are consistent with the provisions of the Paperwork Reduction Act Amendments of 1995, the Clinger-Cohen Act, the Government Performance and Results Act (GPRA), and OMB Circular No. A-130. Foremost among these is GPRA, which mandates the adoption of a strategic and annual planning process tied to budget and authorization cycles and based on established and measurable performance indicators for every program.

The purpose of this study was to develop performance measures that will assist agencies to assess the quality and usefulness of their websites and to improve public information access services of those websites. The study was sponsored jointly by three federal agencies: the Defense Technical Information Center, the Energy Information Administration, and the Government Printing Office. The investigators conducted a literature review, reported in Chapter 1. They undertook an analysis of laws and policies affecting website performance measures, reported in Chapter 2. They met with agency representatives individually and collectively and analyzed documents provided by the agencies, as Chapter 3 explains. Chapter 4 describes the performance measures that emerged from the study. Chapter 5 sets forth key issues and recommends next steps.

The study employed a multi-method approach to data collection and analysis. Given the relatively short time line for the study and the limited resources available the following approaches were employed:

- **Literature Review**. The study reviewed selected literature and reports from both inside and outside the government.
- **Group Interviews with Participating Agency Representatives**. The investigators (1) met individually with representatives of each participating agency, (2) met with the participants as a group, and (3) conducted a number of individual follow-up discussions with representatives of the three agencies about activities and procedures for assessment in their agency.
- **Best Practices**. Each of the three participating agencies provided the investigators with (1) descriptions of their assessment techniques, and (2) documentation and reports related to these assessment techniques; these materials were reviewed and analyzed by the investigators.
- **Policy Analysis**. The investigators reviewed existing federal policies, laws, and

guidelines to produce an overview of policies affecting the development and management of federal websites.

- **Survey**. The investigators conducted a survey at the FedWeb 2000 conference held in March, 2000 at Bethesda, MD, that provided a snapshot of current practices and key issues of concern to federal officials regarding the assessment of federal websites.
- **Participant Review**. Officials from the three participating agencies had a number of opportunities to review and discuss preliminary findings and reports developed by the investigators.

Website evaluation can be defined as the use of research or investigative procedures to systematically investigate the effectiveness of a web based information system on an ongoing basis. Evaluation is used in conjunction with a number of activities:

- Planning, Goal Setting and Determining the Degree to Which an Information Systems Organization is Meeting Set Goals
- Decision-making and Resource Allocation
- Determine the Effectiveness of a Previous Decision
- Determine the Degree to which the System/Service Adds Value to the Organization
- Provide Trend Data to Assess Change Over Time
- Contribute to Continuous Improvement Efforts and Benchmarking
- Identify Problems and Possible Solutions
- Empower Organizational Actors to Seek and Enact Solutions
- Develop Accountability
- Organizational Learning

Performance measures are the tools that enable evaluation. Performance measures typically provide measurements of the following:

- **Inputs and Efficiency**. The use of resources in providing or accessing web services.
- **Effectiveness**. How well the networked information service met the objectives of the provider, user or customer.
- **Outputs**. Indicators of the products or services resulting from the use of those resources.
- **Extensiveness**. How much of a service the network provides.
- **Service Quality**. How well a service or activity is done.
- **Impact**. How a service made a difference in some other activity or situation.
- **Usefulness**. The degree to which the services are useful or appropriate for individual.
- **Adoption**. The extent to which institutions or users integrate and adopt web resources in organizational or individual activities.

One can see federal agency web system evaluation as a special subset of web information systems (IS) evaluation that in turn is a subset of general IS evaluation. IS evaluation has become an increasingly important topic within the competitive U.S. business environment. The last five years has seen a surge of interest in website evaluation. Federal website evaluation has been ongoing since the inception of federal websites. One early landmark was the World Wide Web Federal Consortium publication of suggested guidelines for federal website development.

In summary, website evaluation is an important part of the ongoing management and enhancement of federal agency websites. Evaluation, whether as part of a formal planning process or as a stand-alone activity, can provide managers with key information that can aid decision making. Although web sites are a relatively new medium, IS evaluation has a long history, providing tools and lessons learned that federal web managers can apply to their web evaluation efforts. Current academic research on federal agency web evaluation also provides strategies and tools that agencies can adapt for their efforts.

2.0 FEDERAL POLICIES AFFECTING WEBSITE DEVELOPMENT AND MANAGEMENT

Federal information policies establish the legal and procedural framework in which government information and services are made available to the public. The study provides an introductory review of selected U.S. Federal information policy instruments *that affect the development and management of Federal websites*. This listing is not comprehensive, but rather offers a general sense of the range of existing Federal policies that should be considered in the development, management, and evaluation of websites. Issues that Federal agencies need to consider in developing websites include information security, information privacy, information access, electronic records management, and intellectual property.

Table 2.1 is a summary presentation of the study's elaboration of federal policies affecting agency websites. For each topic the table shows the relevant statute, executive order, or other key document, plus implementing policy guidance, if any. The right hand column summarizes the implications for websites. The text of Chapter 2 summarizes the policy instruments and includes pertinent quotations from the instruments themselves.

3.0 REVIEW OF AGENCY PRACTICES

The report provides an overview of evaluation and performance measures practices at the Defense Technical Information Center (DTIC), the Energy Information Administration (EIA), and the Government Printing Office (GPO) current as of July 2000. On March 15 and 16, 2000, the investigators interviewed agency personnel from each of the participating federal agencies in site visits to the agencies. Each of these agencies supplied documents in answer to the investigators' queries.

From each agency, the study team requested the following:

Table 2.1 Summary of Federal Policies Pertaining to Agency Websites

	Topic	Statute, Presidential Directive, or Other Document	Implementing Guidance	Website Implications
I. General Government Policy	A. Performance and Results	Government Performance and Results Act	OMB Circular A-11, Part II	Performance plans, goals, and measures for agency programs
	B. Customer Service	E.O. 12862, Setting Customer Service Standards	-	Identify customers, their needs, and set standards and benchmarks
	C. Accessible Information Technology	Rehabilitation Act, section 508	-	Information technology accessible to persons with disabilities
	D. Electronic Government	Pres. Memo on Electronic Government	-	Standardized access to and ease of finding government information, plus privacy and security
II. Federal Information Policy	A. National Information Infrastructure	NII Agenda for Action	-	Make govt. information more easily and equitably accessible
	B. Privacy and the NII	Principles for Providing and Using Personal Information	-	Guidelines to personal information users and providers
	C. Copyright	Digital Millennium Copyright Act	-	Protecting copyright in electronic media
	D. Rights of Access to Information	Freedom of Information Act	-	State FOIA procedures on websites
		Electronic Freedom of Information Act	-	Establish electronic reading room on websites
		Privacy Act	OMB Circular A-130, Appendix I	Handling of personal information
			Pres. Memo on Privacy and Personal Information in Federal Records	Review privacy policies and practices; update notices of systems of records
			M-99-18 on Privacy Policies on Federal Websites	Display privacy policies on websites
			M-00-13 on Privacy Policies and Data Collection on Federal Websites	Discouragement of and restrictions on use of "cookies" on websites; comply with COPPA
		Public Printing and Documents: Depository Library Program	-	Publications provided to depository library program.
	E. Paperwork Reduction Act	Paperwork Reduction Act	OMB Circular A-130	Framework for agency information management plan, including information dissemination
	F. Clinger-Cohen Act	Information Technology Management Reform Act	E.O. 13011, Federal Information Technology	Websites to be interoperable and standardized across government
	G. Security	Computer Security Act	Proposed Revision of OMB Circular A-130, April 13, 2000	Mission based performance measures for information systems
			OMB Circular A-130, Appendix III	Security controls for federal information systems
			PDD 63, Protecting America' Critical Infrastructures	Performance measures for website security
	H. Electronic Collection and Digital Signatures	Government Paperwork Elimination Act	OMB Notice: Implementation of the Government Paperwork Elimination Act	Increase and encourage electronic data collection and implement digital signatures
	I. Federal Records	Federal Records Act	General Records Schedule 20, Electronic Records, and various NARA Bulletins	Provide for management of records created on websites

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I. Set of documents by which the agency evaluates its website material.
II. What types of statistics and performance measures is the agency currently using for its website?
III. What overall evaluation methodologies are currently in place and how are they conducted/operated?
IV. Can we determine the types of reports generated by the agency evaluation efforts and the success or quality of these reports?
V. To what degree are information policy instruments/guidelines (as per the compilation in I) being considered in the documents and reports?

To the above questions, the investigators added:

VI. Preliminary review of website
VII. Summary comments

The objectives of the review and assessment were to:

- Identify the basic evaluation methodologies, statistics, and performance measures currently in use at each of the agencies
- Provide a composite view of the three agencies that would allow each to compare its practices and techniques with others
- Consider which activities might constitute "best practices" for federal website performance measures
- Establish a first step toward developing statistics and measures for federal website performance measures.

DTIC. The DTIC website acts as a portal for the public to other sites designed for fuller public use. Further, it provides fuller service to users who are technologically sophisticated and familiar with the agency's structure, context, and background. In the past, DTIC has relied on technical self-evaluation sources such as log file analysis, bandwidth usage and tracked web site response time. But recent efforts have also included user based evaluation techniques such as the Secure STINET customer satisfaction survey. DTIC is also involved in a larger CENDI Agency working group effort to incorporate greater use of web evaluation tools.

EIA. The task faced by EIA in putting its information on the web is an organizational conundrum. The EIA web committee has the unenviable assignment of posting highly diverse technical information from many sources on one website suitable for use by the layperson. To this end, and to their credit, the EIA web committee has recognized the need for continual evaluation and redesign of the site in reaction to a constantly changing environment. They have conducted studies to aid in the creation of the next version of their home page to be unveiled in the near future. The new design takes a channel approach, strives for less jargon, and is designed with the layperson in mind. To prepare for this new design, EIA chose to perform cognitive usability testing. The results from this usability testing suggest that EIA's current web site design meets key usability requirements as most users could find the required information.

GPO. GPO established the GPO Access website to fulfill the mandate required by PL 103-40. Under the provisions of this law it has subsequently evolved to provide public access to many key government documents. As of November 1999, the website provided access to more than 104,000 titles on Government Printing Office servers and over 62,000 additional titles through links to other federal agency websites. GPO considers Permanent Public Access to be an important performance measure for federal agency websites. GPO Access maintains historical archives of information previously available on its servers, ensuring permanent public access to its collection of electronic government information products, and facilitating the same historical research that is possible through printed media.

As a content oriented web site, GPO Access primarily measures the number of documents retrieved by users as a selection of the units of content being distributed by the site. In addition, staff constantly evaluate other aspects of the website through focus groups, online user surveys, user comments, log analysis, trade shows and conferences. Further, GPO conducts user-training sessions. GPO has ensured that the information on its website is listed in commercial search engines. GPO also has conducted bandwidth usage studies to determine peak user times and peak usage pages. GPO has a well developed management approach for its website and has committed significant effort and thought to evaluating it.

The evaluation and measurement efforts at DTIC, EIA, and GPO demonstrate the wide range of strategies for measurement. The efforts also suggest that different strategies can be useful in different agency settings. For example, some agencies may be better able to employ regular and automatic log analysis techniques than to implement full-scale usability studies. Others may find that the establishment of formal usability labs to "test" the effectiveness of selected pages and content may be more effective. Ultimately, the "best" strategies may be those that best accommodate agency mission and available resources.

The review of agency practices described here may also be useful for other federal agencies to compare themselves against. It is *not* that one agency is better or worse than another; rather, that these agencies have taken *different* approaches to developing evaluation and measurement techniques. A range of issues and situational factors affect the success with which any agency can engage in an ongoing program of evaluation and measurement.

Each of these three agencies is in the process of developing and evolving their assessment techniques. Within this process each has struggled with a comprehensive planning approach to formally establish responsibilities, tasking, schedules, statistics, and measures to be employed to assess the quality of agency websites and their usefulness to users of that website.

4.0 PROPOSED PERFORMANCE MEASURES

The report describes and elaborates on the findings from the assessment of the materials collected from the three sponsoring agencies concerning the types of statistics and performance measures the agencies were using. Appendix A, Criteria for the Evaluation of Federal Websites, and Appendix B, Website Performance Measurement and Evaluation for GPO Access, supplement the information about performance measures.

As the investigators sifted through the data collected from the agencies and from their own analyses, they realized that the term "performance measure" can be understood in several ways. Many things lumped under the general heading of performance measures might be considered conditions prerequisite to performance measures. In other cases, the materials pertained to management or operational considerations rather than measurement of the website's performance. Performance measures necessarily imply performance goals and the measures yield indicators of progress toward achieving the goals.

The study divided performance measures into three types:

1. Legal and policy conditions affecting agency websites
2. Management and infrastructure factors
3. Performance measures in the stricter sense of the term

These three types of performance measures are summarized below in Tables 4.1, 4.2, and 4.3.

Table 4.1. Checklist of Legal and Policy Conditions Pertaining to Federal Agency Websites

Statute/Policy	**Checklist Question**
1. Privacy	A. Does the website contain a privacy notice that complies with the OMB guidance and model language for federal websites?
	B. Does the website avoid the use of "cookies" or observe OMB-stipulated restrictions?
	C. Does the website comply with the Children's Online Privacy Protection Act, particularly with regard to collecting personal information from children? (Same as 9-B below)
2. Freedom of Information Act	A. Conventional FOIA: Does the website contain clear procedures for requesting agency records under FOIA?
	B. Electronic FOIA: Does the website contain an Electronic FOIA Reading Room?
3. Copyright	A. Does the website management include provisions to ensure that copyrighted materials are not posted without permission from copyright holders?
	B. Reuse Restrictions: Can the site content be freely reused without restriction?
4. Accessibility	Does the website make provision for accessibility for persons with disabilities in accordance with §508 of Rehabilitation Act?
5. Security	Does the website management include adequate provisions for protecting the security of the website and other agency information systems?
6. Paperwork Reduction Act	A. Do information collections undertaken via the website have appropriate OMB clearances?
	B. Does the website comply with provisions for the Government Information Locator Service?
7. Depository Library Program	Have publications posted to the website been made available to the Federal Depository Library Program?
8. Government Paperwork Elimination Act	A. Does the website permit and encourage electronic information collection?
	B. Does the website permit use of digital signatures?
9. Federal Records Act	Does the website management include adequate provision for identifying website records and transferring records to agency record keeping systems?
10. Access for Children	A. Does the website comply with the President's April 1997 guidance on expanding Internet access for children, parents, and teachers?
	B. Does the website comply with the Children's Online Privacy Protection Act, particularly with regard to collecting personal information from children? (Same as 1-C above)

Table 4.2. Management and Infrastructure Factors Pertaining to Federal Agency Websites

Type of Factor	Factor
1. Infrastructure	A. Does the website have sufficient technology infrastructure (bandwidth, server controller array, etc.) to ensure adequate response time?
	B. Does the website have the appropriate software to achieve its purposes?
	C. Does the website have the appropriate level of availability (e.g., 24 hours, 7 days a week)?
	D. Does the website have adequate steps for emergency preparedness and disaster recovery?
	E. Does the website have adequate operating resources (funding and personnel) to achieve its purposes?
	F. Are server errors and 404 errors (pages not found errors) at an acceptably minimum level?
2. Management	A. Does the website comport with industry best practices, such as the World Wide Web Federal Consortium's Home Page Guidelines, as regards content design, navigation, organization, style, and markup.
	B. Access control: Does the agency exert management control over who may post to the website?
	C. Quality control: Does the agency exert management control over the quality, design, and style of website postings?
	D. Awareness and Visibility: Has the agency ensured the site is easily reachable by registering with search engines and portals and periodically searching for its sites on these engines?
	E. User Support: Has the agency provided an adequate user support staff for technical and content queries?
	F. Security: Is the agency providing adequate security to prevent intrusion into the website?
	G. Evaluation: Does the agency regularly evaluate the website through log file analysis, focus groups, online user surveys, open public forums, and other appropriate methodologies?
	H. Records Management: Has the agency made adequate provision for records management on the website and integrated the website into the agency records management program?

Table 4.3. Performance Measures for Federal Agency Websites

Performance Goal	Basic Measures	Other Agency Specific Measures
Extensiveness: **Amount or extent to which services are used**	-Information on content unit retrievals; e.g., no. of document downloads -No. of user sessions per time period (not no. of hits)	-No of User contact sessions -Activity levels by time periods -Ratio of unique to repeat (2 or more) user sessions per time period.
Efficiency: **Use of resources in providing services**	-Cost of providing website session per user -Percent of operational time when website is not available	-No. of FTE hours or days devoted to website creation/ maintenance by size of site in pages -Cost per user help session -Relation to diminishing costs of other publications media (e.g., printing) as indicator that website may be replacing other media.
Effectiveness: **How well the website meets the general governmental objectives and specific agency objectives**	-Completeness of coverage of agency publications, press releases, etc. -Degree to which website is increasing the timeliness of access to agency pubs	-Permanent public access to agency publications -Degree to which GILS is integrated into website design/operations -Degree to which website shows agency reaching new constituent audiences
Service Quality: **How well the website functions**	-User success rate in finding specific information in a given time period -Average time between user contact request and agency response -No. of customer complaints/suggestions and whether agency action results.	-Whether agency has Help Desk dedicated to its website -24/7 availability measures -Minimal 404 errors -Courtesy, helpfulness of user support staff -Increase in no. of repeat users per time period
Usefulness: **How well the website meets the needs of users**	-Customer comments plus surveys and focus groups -Degree to which website information increases user productivity -Degree to which website information is incorporated into other tasks inside and outside the agency	-Cognitive and Usability Evaluation -Measured user satisfaction with: •Clarity of homepage; organization of site •Timeliness of website information •Links to other useful information -No. of referrals from other websites and sources of referrals

In conclusion, the investigators offer the following recommendations:

1. Federal agencies should address the questions in Table 4.1 regarding agency websites. These are basic questions about whether the practices of the agencies' sites comply with federal law and policy.
2. Agencies should consider the questions in Table 4.2 as a useful but nonexhaustive checklist of infrastructure and management questions they should pose with respect to their websites.

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3. Agencies should ask themselves whether their website performance measures programs address the six performance goals listed in Table 4.3 and their associated basic measures. The investigators do not necessarily recommend that websites use the exact measures listed in the table, but they do recommend that all agencies employ measures at least similar to these.

5.0 ISSUES, RECOMMENDATIONS, AND NEXT STEPS

The issues discussed in this study are not intended to be comprehensive; rather, they suggest important concerns that will need to be reviewed, discussed, and resolved at individual agencies. The solution to these issues is likely to vary depending on a range of situational factors in each agency.

Key issues agencies must address and resolve concerning websites include the following

- Top Level Administrative Support for Website Assessment
- Ongoing Program of Website Evaluation
- Organizing for Website Assessment
- Funding Website Assessment
- Agreement on Approach and Measures
- Training
- Recognizing the Policy Context
- Sharing Knowledge
- A Changing Web Evaluation Context

Federal agency website evaluation and development of performance measures is in its infancy and much work lies ahead in designing, testing, and implementing evaluation methods and measures. The investigators recommend two broad areas for next steps that can build upon the work described in this report.

- Undertake a follow-on study to explore in greater depth some of the issues surfaced in this research. Appendix C provides an example of a proposal for such a study.
- Disseminate findings widely and increase awareness. This study is limited in scope and yet its findings could prove useful to many other agencies.

Evaluation and performance measures to describe federal websites and resources in the networked environment are important tools. But an ongoing program of evaluation that regularly produces these performance measures is a tool that is essential for the long-term success of the agency. Perhaps most importantly, an ongoing program of evaluation contributes to the process of constant improvement – looking for ways to improve the usefulness, impact, and benefits that can result from web-based resources and services. At issue is the degree to which these web-based resources and services are cost effective, deliver high-quality services, meet the needs of users, comply with existing policy, reduce agency costs, and help accomplish agency mission and objectives – to name but a few criteria.

CHAPTER 1

INTRODUCTION

1.0 BACKGROUND

Federal agency web sites increasingly act as key information and service resources for the agencies themselves, citizens, public interest groups, government employees, contractors and other stakeholders. Agency web managers have seen web page use go "up up up" as more people access more federal agency web pages more often. Five years ago, in the nascent stages of federal web site development, web mangers could evaluate their web system based on perceived usage and expansion. As long as usage was increasing, and agency personnel were putting more information and services on line, "things were good."

Today's environment, however, demands more sophisticated measures for web site evaluation. IT resource demands are increasing, federal performance review guidelines demand increased efficiency, users grow more sophisticated and demand more information and more services. This environment of growing demands and constricting resources requires evaluation and performance measures that allow web managers to do more than show that usage is going "up up up" and that the overall size of the web site is increasing. Today's federal agencies need evaluation and performance measures to aid in more complex tasks such as:

- Increasing site usability, content and service quality;
- Creating strategic plans and prioritizing projects;
- More efficiently and effectively allocating resources;
- Improving information and service quality and;
- Enhancing behind the scenes management processes.

In addition, a variety of federal laws, regulations, and guidelines prescribe how websites are to be managed and evaluated (see Chapter 2). Foremost among these is the Government Performance and Results Act of 1993 (GPRA), which mandates the adoption of a strategic and annual planning process tied to budget and authorization cycles and based on established and measurable performance indicators for every program.

Websites are now a major vehicle through which federal agencies deliver information to the public. While agencies have made some progress in establishing finding aids such as the Government Information Locator Service (GILS) to assist in locating information, as yet no systematic effort has been devoted to measuring the overall performance of websites in successfully achieving adequate levels of public access to government information.

Some agencies maintain a range of statistics describing web services while others have undertaken only minimal or no data collection and analysis effort; some have devoted substantial resources to "one-stop shopping" for information; many have developed "frequently asked questions" to assist visitors to agency websites. Most agencies already use weblog statistics and other software-based measures to examine aspects of their websites' performance. But agencies still need a flexible approach that goes beyond web statistics such as transaction logs to offer a variety of techniques by which agencies can determine whether their websites are successfully achieving the information dissemination missions for which they are intended.

1.1 STUDY PURPOSE AND REPORT STRUCTURE

The overall purposes of the project are to develop performance measures that will assist agencies to assess the quality and usefulness of their websites and to improve public access services of those websites. More specifically, the project had the following objectives:

- Examine the professional literature, as well as government agency and commercial experience, to identify and make use of measures already developed by others.
- Identify those aspects of agency websites that are most important for effective delivery of public information.
- Develop a set of objective performance measures for determining the degree to which an agency website effectively provides public access to agency information resources.
- Test and refine these measures in selected agencies.
- Propose a concise set of procedures that describes how these performance measures can be further developed and applied by agencies.

Limited time and resources did not allow the investigators to test and refine the measures as much as might have been desired. Such efforts can be continued after this study. Ultimately, the investigators hope that both public user groups and agency officials will be able to determine the degree to which a given agency website meets these performance measures.

The study provides an overview of evaluation techniques and performance measures used in three federal government agencies (see Chapter 3). Based on these summaries, selected sources from the literature, and the investigators' experience, the report then suggests key federal website performance measures that can be developed and used in federal agencies at this time (see Chapter 4).

The report is structured as follows. This first chapter provides an introduction to key concepts and literature related to evaluation and performance assessment. The second chapter reviews federal policy impacting federal agency web site evaluation. The third chapter summarizes performance measures used at three federal agencies. The fourth chapter suggests federal agency performance measures for the future. The report concludes with a chapter describing key issues yet to be resolved and offers some possible next steps in developing performance measures for federal websites.

1.2 OVERVIEW OF STUDY METHOD

The study employed a multi-method approach to data collection and analysis. Given the relatively short time line for the study and the limited resources available the following approaches were employed:

- **Literature Review**. The study reviewed selected literature and reports from both inside and outside the government. While there is some useful background information (see below) there is limited knowledge and information about developing and computing a coherent set of performance measures for government websites.
- **Group Interviews with Participating Agency Representatives**. The investigators met (1) individually with representatives of each participating agency, (2) the participants as a group, and (3) conducted a number of individual follow-up discussions with representatives of the three agencies about activities and procedures for assessment in their agency.
- **Best Practices**. Each of the three participating agencies provided the investigators with (1) descriptions of their assessment techniques, and (2) documentation and reports related to these assessment techniques; these materials were reviewed and analyzed by the investigators.
- **Policy Analysis**. The investigators reviewed existing federal policies, laws, and guidelines to produce an overview of policies affecting the development and management of federal websites; this compendium identifies a number of ambiguities and issues that will require additional assessment.
- **Survey**. The investigators conducted a survey at the FedWeb 2000 conference held in March, 2000 at Bethesda, MD. This survey provided a snapshot of current practices and key issues of concern to federal officials regarding the assessment of federal websites.
- **Participant Review**. Officials from the three participating agencies had a number of opportunities to review preliminary findings and reports developed by the investigators.

The combination of these approaches provided the investigators with a unique perspective on current practices, key issues, and possible assessment techniques and performance measures. The approach demonstrated the importance of recognizing the existing policy environment that affects agency website development and management (see Chapter 4). The approach also resulted in a better understanding of the problems and issues that agencies confront in attempting to conduct ongoing website evaluation and assessment (see Chapter 5).

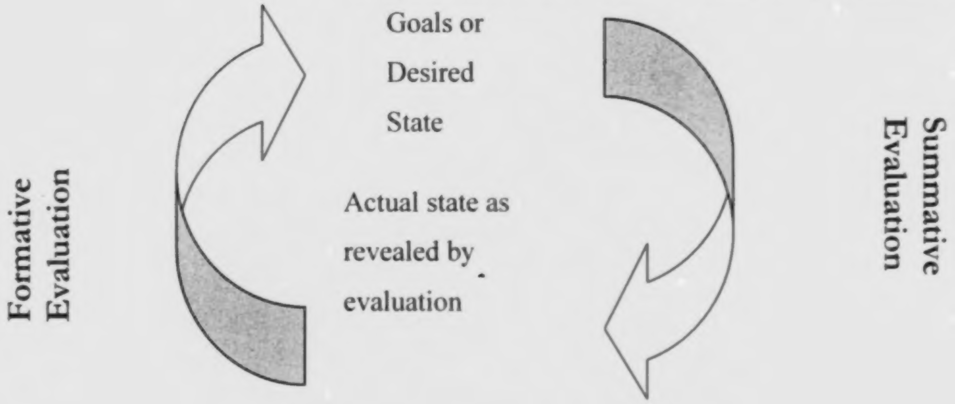
1.3 WHAT IS EVALUATION?

Website evaluation can be defined as the use of research or investigative procedures to systematically investigate the effectiveness of a web based information system on an ongoing basis. Evaluation is used in conjunction with a number of activities and has a number of impacts on an organization.

1.3.1. Planning, Goal Setting and Determining the Degree to Which the IS Organization is Meeting Set Goals

Evaluation plays a key role in organizational planning and goal setting. This is known as "formative" evaluation. In contrast, "summative" evaluation determines the degree to which the organization is meeting set goals. Figure 1 illustrates this dual role. On the left side of the diagram, information discovered as part of the evaluation process feeds back into goal setting and planning. Ongoing evaluation is a vital source of information for agencies' planning processes. For example, an evaluation of current website user satisfaction may reveal usability issues with the current page design or information architecture. Planners may choose to change or modify goals based upon newly discovered problems or the achievement of previously set goals.

Figure 1.1: Formative and Summative Evaluation



On the right side of the diagram, evaluation is used to determine the degree to which the organization has met stated goals. Developing goals and objectives with no follow-up effort to determine how well those objectives were actually accomplished significantly reduces the overall value of both planning and the use of assessment techniques. Based on the previous evaluation, if the organization had created a goal to improve site usability, they would then use evaluation to determine the degree to which the site's usability had improved.

Both formative and summative evaluation efforts are important – although most organizations tend to concentrate on summative approaches. But for monitoring and ongoing improvement of services, formative evaluation (intended to improve, not prove) is essential.

1.3.2. Decision-making and Resource Allocation

Often managers find themselves in problematic situations with multiple possible solutions. It is difficult to know, up front, which solution will best meet overall goals. Consider the situation where a web manager's overall goal is to increase the user's ability to find product and service information. Designers might suggest a number of possible web page designs. Which design will best increase usability? Evaluation of the possible page designs will provide data to help answer the question.

Further, in an environment of restricted resources, organizations often cannot provide resources to all programs or projects that request funding. Decision makers must choose projects or programs to fund. Evaluation can provide data to assist in the decision making process and justify requests for new resources.

1.3.3. Determine the Effectiveness of a Previous Decision

Similarly, organizations can use evaluation to determine the effectiveness of a previous decision. Did the funded program or project live up to its promises? To what extent did the funded program or project meet its stated goals? To what extent did the decision successfully contribute to the organization's goals? When agencies fail to ask these types of questions they run the risk of maintaining programs and services that do not work well and are not meeting user needs.

1.3.4. Determine the Degree to which the System/Service Adds Value to the Organization

Evaluation can answer specific organizational questions about the degree to which a system adds value to an organization. For instance, evaluation could show how a system reduced overall costs or to determine if printing costs decline as on-line publication of information increases.

Agencies are only beginning to explore how web based services add value or enhance traditional services. But, agencies now see that being able to provide user services on a 7 days a week, 24 hours a day basis is a significant change in service provision. This "value add," however, may result in other impacts such as an increased need for real time user support.

1.3.5. Provide Trend Data to Assess Change Over Time

Collection and comparison of assessment results over time can show trend data for federal web sites. Trend results may show changes more effectively than individual assessment results if the results change gradually over time and imply a continued trend in a certain direction. For instance, if results were being used to justify more budget dollars, trend data showing reduced costs over time would both better show the impact of the service and more effectively convince decision makers that costs will continue to fall.

Trend data is especially important for formative evaluation efforts as it provides a basis by which changes in the use of a services can be identified early on. In log analysis techniques, a change in accessing the website via a second level page rather than the homepage has significant implications for content development.

1.3.6. Contribute to Continuous Improvement Efforts and Benchmarking

Evaluation can serve as a first step in benchmarking. In benchmarking, organizations identify best-practice performance. They then use that performance as a goal, investigate the factors that led to the performance, and then try to replicate that level of performance. Evaluation provides a base level reading of organizational performance on benchmark measures and can also show longitudinal progress toward the goal.

1.3.7. Identify Problems and Possible Solutions

One impact of evaluation is the identification of previously undetected problems. Evaluation can also indicate the extent or scope of a problem. Once such problems are identified and described, a plan to address the problem can be developed. Identification of unanticipated problems is a powerful tool that takes on increased important in a web environment since oftentimes technical assessment (as opposed to user assessment) may be the only type of assessment being conducted.

1.3.8. Empower Organizational Actors to Seek and Enact Solutions

Another beneficial side effect of evaluation is that it can lead to increased employee involvement and action. As part of the evaluation process, employees identify problems and potential solutions. Employees then can act on the problems, develop solutions and improve web-based services directly and immediately. Seeing changes and improvements to services can improve morale and increase confidence to tackle further problems. Further, changes to services may improve work processes and reduce inefficiency, thereby reducing work stress.

1.3.9. Develop Accountability

Evaluation may also lead to increased accountability as employees within the organization identify and take responsibility for problems and solutions. Further, the goal setting process in formative evaluation has the positive impact of increasing employees' understanding of organizational goals and expectations. This better understanding may lead to increased accountability in meeting the goals and expectations.

1.3.10. Organizational Learning

Evaluation is also an opportunity for organizations to learn about themselves and the diversity of needs, goals and perceptions within the organization. First, evaluation tells the organization about its own strengths and weaknesses. Second, it provides a snapshot of current organizational infrastructure and resources. Third, evaluation can illuminate differences between groups within the organization; how the groups may have different goals, different interpretations of problems, and differing needs. Finally, the evaluation process encourages these value judgments regarding appropriate levels or quality of services to be made explicit.

These value judgments may provoke debate that educates members about the potential impact of particular measurements on the organization, the costs and benefits of choosing a particular goal, and the variety of needs and goals of different groups within the organization.

1.4. PERFORMANCE MEASURES

Performance measures are the tools that enable evaluation. As a doctor needs to monitor blood pressure and heartbeat to perform a check-up, evaluators need to look at performance measures to conduct an evaluation. They are an essential means to assess agency services and accomplishment of mission.

Performance measures typically provide measurements of the following:

- **Inputs and Efficiency**. The use of resources in providing or accessing web services (e.g. staff hours required for site maintenance, technical training or consulting services required for systems integration).
- **Effectiveness**. How well the networked information service met the objectives of the provider, user or customer (e.g. success rate of identifying and accessing the information needed by the user).
- **Outputs**. Indicators of the products or services resulting from the use of those resources (e.g. number of agency documents available online, usage levels for a given e-service).
- **Extensiveness**. How much of a service the network provides (e.g. number of visits to a web site per week, how many document downloads per week.)
- **Service Quality**. How well a service or activity is done (e.g., percentage of transactions which result in an order or a document download).
- **Impact**. How a service made a difference in some other activity or situation (e.g. the degree to which network users saved time, resolved a decision or identified new and innovative applications/services).
- **Usefulness**. The degree to which the services are useful or appropriate for individual users (e.g. percentage of services of interest to different categories of users).
- **Adoption**. The extent to which institutions or users integrate and adopt web resources in organizational or individual activities (e.g. problem solving, using

online forms instead of print, etc.).

These categories can become blurred and are not necessarily mutually exclusive. In addition, evaluation and performance measures reflect value judgments on the part of evaluators regarding the adequacy, appropriateness, and success of a particular service or activity. Use of performance measures can lead to beneficial organizational changes. For example, a tendency of users stick to use of printed forms instead of online forms can be an indicator that the organization needs some targeted business process reengineering.

1.5. OVERVIEW OF WEB EVALUATION

This section sets the context for federal web site evaluation, explaining its relation to broader efforts to evaluate web information systems (web IS) and information systems (IS) in general. One can see federal agency web system evaluation as a special subset of web IS evaluation that in turn is a subset of general IS evaluation. This section first provides a brief overview of IS evaluation in general. It then provides a select overview of modern web IS evaluation research. It finishes with an overview of recent federal web evaluation efforts.

1.5.1. IS Evaluation

IS evaluation has become an increasingly important topic within the competitive U.S. business environment. Several factors have contributed to evaluation's growing importance. First, IS projects historically have had low success rates; some researchers have suggested they are as low as 30-40 percent (Willcocks and Lester, 1993). Tom Peters believes that 85 percent of companies trying to restructure around e-commerce will "blow it." He goes on to suggest that the move to e-commerce has more to do with relationships and organization than with IT. (Infoworld, September 25, 2000, p. 200).

This increases pressure on managers to both justify their projects and show how their projects can and will succeed. Second, vendors inundate mangers with a maelstrom of hype surrounding new products and IT trends.

Managers need evaluation tools to help them determine the actual usefulness of these products and trends for their organizations. Third, while organizations' budgets have generally increased allocations for IT, downsizing and streamlining demands require IT managers to show how increased IT spending is adding value to the organization. For examples of and resources about general IS evaluation guides see:

- The National Research Council report *More Than Screen Deep: Toward Every-Citizen Interfaces to the Nation's Information Infrastructure,* http://www.nap.edu/readingroom/books/screen
- *Assessing the Academic Networked Environment: Strategies and Options* by Charles McClure and Cynthia Lopata, available through the Coalition on Networked Information, http://www.cni.org
- "Managing Information Systems: A Practical Self Assessment Tool" (Preview

version) by the Information Technology Review Board, http://www.itrib.gov
- Performance-Based Management: Eight Steps to Developing and Using IT Measures Effectively" by the GSA Office of Government wide Policy, http://www.itpolicy.gsa.gov/mkm/pathways/evt8step.html
- Performance Pathways" part of the IT Ramp website of the GSA Office of Information Technology http://itpolicy.gsa.gov

Readers should take note that the many resources developed for general IS evaluation can be adapted for use in web site evaluation.

1.5.2. Web IS Evaluation

The last five years has seen a surge of interest in website evaluation. One result has been the publication of plethora of web "do-it-yourself" books that include advice on both design and evaluation (for example see Nielsen, 2000; Jacobson, 1999). At the same time researchers from the business, education and library science fields have sought to evaluate web sites based on the many criteria including:

- Interface design (Kopak and Cherry, 1998; Vanhouse, Butler, Ogle, Schiff, 1996)
- Usability (Benbunan-Fich, 1999)
- Comparison to peer organizations - benchmarking (Johnson and Misic, 1999)
- Fit with theoretical models (eg. Marketing model: von Dran; Zhang and Small, 1999; motivational model: Zhang and von Dran, 2000)
- Web site strategy (Simeon, 1999; Auger 1997)
- Information quality (McMurdo, 1998)
- Hypertext Structure (Bauer and Scharl, 2000)

Web site evaluation has also become a popular topic within the trade press (e.g. Dugan, 2000). A significant amount of web evaluation effort has been put into log analysis techniques (Bertot, McClure and Rubin, 1997) and use of specific log analysis software such as WebTrends (http://webtrends.com). Additional information on the use of log analysis tools and software can be found at Yahoo! Under computers and the Internet: Log Analysis tools at http://www.yahoo.com/Computers_and_Internet/Software/Internet/World_Wide_Web/Servers/Log-Analysis_Tools.

Once again, readers should note that information on general website evaluation is applicable to the federal web environment with certain key allowances made for design restraints imposed by regulation or statute.

1.5.3. Federal Website Evaluation

Federal website evaluation has been ongoing since the inception of federal websites. One early landmark was the World Wide Web Federal Consortium[1] publication of suggested guidelines for federal website development (draft 1996). The guidelines have been periodically updated in recent years.[2] Many federal agencies conduct periodic evaluations to maintain and enhance the quality of their sites. See, for example, "Love That Site, Love That Agency" (*Government Computer News*, 1999) for a description of an evaluation of the Defenselink website. Recently published guidelines include the Federal Webmaster Forum Website Privacy Guidelines.[3]

There has also been a substantial and increasingly sophisticated academic evaluation research stream. Current web evaluation research has looked at federal websites in terms of a variety of evaluation criteria including information content and ease of use (e.g. Eschenfelder et al., 1997; McClure and Wyman, 1997; Hert and Marchionini, 1997) and compliance with federal records guidelines (McClure and Sprehe, 1999).

Further, some studies have looked at specific aspects of websites. For instance, Hert (1998) evaluated web site finding aids and Moen and McClure (1997) examined the government information locator service (GILS). Other evaluation efforts have taken a more holistic approach. For instance, Hert, Eschenfelder and McClure (2000) included a usability, management, technical and policy analysis. Finally, these studies have been varied in methodologies, with some relying on mainly one method (e.g. log file analysis Redalen & Miller (2000) and Bertot et al. (1997)) while others have taken a multi-method approach (e.g. Hert et al., 2000).

1.6. IMPORTANCE OF WEBSITE EVALUATION

In summary, web site evaluation is an important part of the ongoing management and enhancement of federal agency websites. Evaluation, whether as part of a formal planning process or as a stand-alone activity, can provide managers with key information that can aid decision making. Although web sites are a relatively new medium, IS evaluation has a long history, providing tools and lessons learned that federal web managers can apply to their web evaluation efforts. Current academic research on federal agency web evaluation also provides strategies and tools that agencies can adapt for their efforts.

Interest in evaluation of web based services continues to increase, although, few comprehensive approaches assess federal websites on an ongoing basis. As agencies continue to be pressed to provide additional web based services with limited resources and as implementation of the Government Performance and Results Act presses forward, ongoing evaluation and use of performance measures is likely to take on increased importance.

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[1] The original guidelines is still available at http://www.dtic.mil/staff/cthomps/guidelines (last visited August 2000).

[2] The current version of the guidelines, dated July 1999, can be found at http://diggov.org/library/current/general/www.ojp.usdog.gov^oa^fedwebguide^execsum.htm. (Visited August 2000)

[3] See the Federal Webmaster Forum homepage at http://itpolicy.gsa.gov/mke/fedwebm/fedwebm.html for current Forum website privacy guidelines.

References

Auger, P. (1997). Marketing on the World Wide Web: An Empirical Investigation of the Relationship Between Strategy and the Performance of Corporate Web Sites [Diss] (01A, Vol. 59, p. 0241), Syracuse, NY: Syracuse University.

Bauer, C.; Scharl, A. "Quantitive evaluation of Web site content and structure" *Internet Research* ; 10:1 2000; pp. 31-44.

Benbunan-Fich, R. (1999, August). Methods for Evaluating the Usability of Web Based Systems. AMCIS Americas Conference on Information Systems. Milwaukee, WI.

Bertot, J.C., McClure, C.R., and Rubin, J. Web Usage Statistics: Measurement Issues and Analytical Techniques. *Government Information Quarterly*; 14:4 1997; pp. 373-395.

Computer Science and Telecommunications Board of the National Research Council *More Than Screen Deep: Toward Every-Citizen Interfaces to the Nation's Information Infrastructure*, http://www.nap.edu/readingroom/books/screen. Washington, DC. Also partially available as "Design and Evaluation: A Review of the State-of-the-Art" *D-Lib Magazine*, July-August 1998.

Dugan, Sean "Learn, know, and live them: The seven metrics of highly successful Web sites" Infoworld.com, January 23, 2000.

Eschenfelder, K.R.; Beachboard, J.C.; McClure, C.R.; Wyman, S.K. "Assessing U.S. Federal Government Websites" *Government Information Quarterly*,14(2), pp. 173-189, 1997.

Government Computer News "Love That Site, Love That Agency" Supplement to the Technology in Excellence Seminar of June, 1999. http://www.gcn.com

Harter, S.P.; Hert, C.A. "Evaluation of information retrieval systems. Approaches, issues, and methods" In Annual Review of Information Science and Technology (ARIST) Volume 32, 1997 p. 3-94 1998 Information Today Medford, NJ

Hert, C.A.; Eschenfelder, K.R., McClure, C.R. Evaluation Of Selected Websites At The U.S. Department Of Education: Increasing Access To Web-Based Resources. Information Institute of Syracuse, 2000.

Hert, C.A. Facilitating Statstical Information Seeking on Websites: Intermediaries, Organizational Tools and Other Approaches. Final Report to the Bureau of Labor Statistics, 1998. Available at http://istweb.syr.edu/~hert/BLSphase2.html

Hert, C.A. and Marchionini, G. Seeking Statistical Information on Federal Websites: Users, Tasks, Strategies, and Design Recommendations. Final Report to the Bureau of Labor Statistics. Available at http://ils.unc.edu/~march/blsreport/mainbls.hmtl

Jacobson, R. Information Design MIT Press: Cambridge, MA: 1999

Johnson, K.L.; Misic, M.M. "Benchmarking: a tool for Web site evaluation and improvement" Internet Research ; 09:5 1999; pp. 383-392.

Kopak, R.W. Cherry, J.M. "Bibliographic displays and web catalogues: user evaluations of three prototype displays" Electronic Library, 16(5)p. 309-323, 1998.

Nielsen, J Designing Web Usability:The Practice of Simplicity New Riders Publishing: 2000.

McClure, C.R. and Cynthia Lopata, Assessing the Academic Networked Environment:

Strategies and Options by Charles available through the Coalitation on Networked Information: Washington DC) 1996.

McClure, C.R.; Sprehe, T. Analysis and Development of Model Quality Guidelines for Electronic Records Management on State and Federal Websites: Final Report The National Historical Publications and Records Commission: Washington DC, 1999.

McClure, C.R.; Wyman, S. Quality Criteria For Evaluating Information Resources And Services Available From Federal Websites Based On User Feedback Online Computer Library Center: Dublin, OH, 1997.

McMurdo, G. "Evaluating Web information and design" Journal of Information Science, 24(3), p. 192-204, May 1998

Moen, W.E. and McClure, C.R. An Evaluation of the Federal Government's Implementation of the Government Information Locator Service (GILS): Final Report. 1997. Available at: http://www.unt.edu/slis/research/gilseval/titpag.htm

Redalen, A.; Miller, N. "Evaluating Website Modifications at the National Library of Medicine through Search Log Analysis" D-Lib Magazine, 6(1), January 2000.

Tague-Sutcliffe, J.M. "Some perspectives on the evaluation of information retrieval systems" Journal of the American Society for Information Science, 47(1), January 1996, Pages: 1-3.

Van House, N.A.; Butler, M.H.; Ogle, V.; Schiff, L. "User-Centered Iterative Design for Digital Libraries: The Cypress Experience" D-Lib Magazine, February 1996

Von Dran, G., Zhang, P., & Small, R. "Quality Websites: An Application of the Kano Model to Website Design" AMCIS Americas Conference on Information Systems. Milwaukee, WI, 1999.

Willcocks, L.; Margetts, H. "Risk Assessment and Information Systems" European Journal of Information Systems 3(2), 127-138, 1994.

Zhang, P.; von Dran, G. "Understanding Website Users: A Two-Factor Model for Website Design and Evaluation" Journal of the American Society for Information Science (forthcoming).

CHAPTER 2

FEDERAL POLICIES AFFECTING WEBSITE DEVELOPMENT AND MANAGEMENT

2.0 INTRODUCTION

Federal information policies establish the legal and procedural framework in which government information and services are made available to the public. "An information policy instrument is a written law, guideline, regulation, or other official statement that describes how information will be collected, managed, protected, accessed, disseminated, and used" (Kent 1999, 307). The purpose of this chapter is to provide an introductory review of selected U.S. Federal information policy instruments *that affect the development and management of Federal websites*. While specific references to the Internet or the World Wide Web may not appear in a given policy instrument, this does not necessarily mean the policy has no application to Federal websites. These instruments are directed toward Federal government procedures and operations in the context of Federal information and/or information technology, and thus would apply to Federal websites unless special rules require otherwise.

This listing is not comprehensive, but rather offers a general sense of the range of existing Federal policies that should be considered in the development, management, and evaluation of websites. Where possible, citations to Web-based sources of information regarding a particular policy are provided, as are selected excerpts of the policy that may be of interest to Federal Web designers, managers, and evaluators. The selection of policies could be extended much more broadly. For example, the chapter leaves out the area of electronic commerce. Federal agencies do use their websites for selling goods and services, and electronic buying of goods and services is a major thrust in the Federal procurement community. Readers who wish to explore the area of Federal e-commerce are referred to http://www.ecommerce.gov.

The policy instruments are organized into a schematic outline, moving from general government policy to general information policy and then to specific information policies. Within each heading occurs a listing of statutory policies and implementing policy guidance. It is within this context that Federal agencies develop and manage their websites for providing government information and services, which must also meet the agencies' mission statements, objectives, and goals.

Issues that Federal agencies need to consider in developing websites include information security, information privacy, information access, electronic records management, and intellectual property. Information security instruments concern risks to the ongoing operation of government computer systems, their integrity, and the protection of classified or confidential materials they contain. Information privacy instruments seek to protect personal information that may be collected from agency website users. Internet access policy instruments are concerned with ensuring the equitable access for U.S.

citizens to electronic information contained on Federal government websites. Electronic records management policy instruments concern issues regarding the creation, maintenance, use, and disposal of Federal records. Intellectual property policy instruments include a wide variety of ownership rights in intangible products, such as copyrights, patents, trademarks, and trade secrets.

Federal information policy and agency website development occur in a dynamic environment. Technological changes impacting on established information policies or creation of new ones occur rapidly, but Federal agencies often must adjust their operations almost immediately. Policy tends to follow technology and practice. Sometimes the lag between policy and practice can be great, so that agencies must craft their own policies to rationalize practices before Congress enacts new laws.

2.1 GENERAL GOVERNMENT POLICY

2.1.1. Government Performance and Results: Performance Plans and Measures

2.1.1.1. Statute: Government Performance and Results Act of 1993. (Public Law 103-62).

Available at: <http://thomas.loc.gov/cgi-bin/bdquery/z?d103:SN00020:|TOM:bss/d103query.html>.

Application to Federal Information Technology and Web Management:

The Government Performance and Results Act of 1993 (GPRA) is intended to help reduce waste and inefficiency in Federal programs and Federal agency operations. It is also designed to assist Congress and the Executive in their oversight, legislative, and administrative tasks related to authorizing, appropriating, and implementing Federal services. GPRA mandates the adoption of a strategic and annual planning process, which is tied to budget and authorization cycles and will be based on established and measurable performance indicators for every program. Although this act was made law prior to the expansion and wide public use of the Internet, particularly the Web, the mandate for the development of performance indicators tied to annual budgeting and strategic planning applies to services offered in an electronic environment. Performance indicators for Federal websites consist of measures that permit an agency to demonstrate whether its websites are or are not meeting the performance goals set forth for the sites. Performance measures could include things such as log transaction files and impact measurements.

Excerpt of Original Text from Policy Instrument:

Section 3. Strategic Planning

Chapter 3 of title 5, United States Code, is amended by adding after section 305 the following new section:

Sec. 306. Strategic plans
(a) No later than September 30, 1997, the head of each agency shall submit to the Director of the Office of Management and Budget and to the Congress a strategic plan for program activities. Such plan shall contain--

* * *

(3) a description of how the goals and objectives are to be achieved, including a description of the operational processes, skills and technology, and the human, capital, information, and other resources required to meet those goals and objectives;

* * *

(6) a description of the program evaluations used in establishing or revising general goals and objectives, with a schedule for future program evaluations.

* * *

Section 4. Annual Performance Plans and Reports

* * *

(b) PERFORMANCE PLANS AND REPORTS- Chapter 11 of title 31, United States Code, is amended by adding after section 1114 the following new sections:
Sec. 1115. Performance plans
(a) In carrying out the provisions of section 1105(a)(29), the Director of the Office of Management and Budget shall require each agency to prepare an annual performance plan covering each program activity set forth in the budget of such agency. Such plan shall--
(1) establish performance goals to define the level of performance to be achieved by a program activity;
(2) express such goals in an objective, quantifiable, and measurable form unless authorized to be in an alternative form under subsection (b);
(3) briefly describe the operational processes, skills and technology, and the human, capital, information, or other resources required to meet the performance goals;
(4) establish performance indicators to be used in measuring or assessing the relevant outputs, service levels, and outcomes of each program activity;
(5) provide a basis for comparing actual program results with the established performance goals; and
(6) describe the means to be used to verify and validate measured values.

2.1.1.2. Implementing Guidance: OMB Circular No. A-11, Part II, Preparation and Submission of Strategic Plans, Annual Performance Plans, and Annual Program Performance Reports

Available at <http://www.whitehouse.gov/omb/circulars/a11/99toc.html>.

Application to Federal Information Technology and Web Management:

OMB Circular No. A-11, issued annually, instructs federal agencies how they are to submit their budget requests for two years hence; that is, in fiscal year (FY) 2000 agencies submit budget requests for FY 2002. Part II was added to Circular A-11 after the passage of the Government Performance and Results Act. It sets forth detailed procedural guidance for formulating the agencies' annual performance plans and describes what agencies are to include in their annual program performance report. Included in Part II is the requirement for program performance goals and the enumeration of the performance measures agencies will use to assess their relative success or failure in achieving performance goals. Part II is the basic Federal policy guidance regarding performance measures in general, as applied to all Executive Branch programs, and has applicability to Federal websites.

2.1.2. Customer Service Standards: Setting Customer Service Standards. (Executive Order 12862). 1993.

Available at: <http://www.pub.whitehouse.gov/uri-res/I2R?urn:pdi://oma.eop.gov.us/1993/9/14/3.text.2>.

Application to Federal Information Technology and Web Management:

Although this Executive order does not specifically address Customer Service Standards in an electronic environment, Federal agency website development teams still need to identify their customers, their customers' needs, and set standards and benchmarks.

Excerpt of Original Text from Policy Instrument:

Sec. 1. Customer Service Standards. * * *

All executive departments and agencies (hereinafter referred to collectively as "agency" or "agencies") that provide significant services directly to the public shall provide those services in a manner that seeks to meet the customer service standard established herein and shall take the following actions:

(a) identify the customers who are, or should be, served by the agency;
(b) survey customers to determine the kind and quality of services they want and their level of satisfaction with existing services;
(c) post service standards and measure results against them;

(d) benchmark customer service performance against the best in business;

(e) survey front-line employees on barriers to, and ideas for, matching the best in business;

(f) provide customers with choices in both the sources of service and the means of delivery;

(g) make information, services, and complaint systems easily accessible; and

(h) provide means to address customer complaints.

Provisions of the Executive Order also require agencies to have a "Customer Service Plan," to develop assessment techniques to gauge the success of the plans, and to report on the degree to which the plan is being accomplished.

2.1.3. Accessible Electronic and Information Technology

Rehabilitation Act of 1973 (Pub. L. 93-112), section 508 (added by the Rehabilitation Act Amendments of 1986, Pub. L. 99-506, section 603(a), codified as amended at 29 U.S.C. § 794d). 1998.
Available at: < http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=1994_uscode_suppl_4&docid=29usc794d>

Application to Federal Information Technology and Web Management:

Section 508 requires that Federal agencies' electronic and information technology be accessible to people with disabilities, including employees and members of the public. It also establishes requirements for any electronic and information technology developed, maintained, procured, or used by the Federal government. The Attorney General must determine and communicate what information is necessary from Federal agencies to conduct evaluations of their current electronic and information technology systems' accessibility. Agencies must then evaluate the accessibility of their IT to individuals with disabilities. In addition, by February 7, 2000, the Architectural and Transportation Barriers Compliance Board is required to issue standards that define which electronic and information technology is covered and describe what is meant by "accessible technology" by setting forth technical and functional performance criteria. The deadline for issuing of the Standards has been extended to August 7, 2000. Federal agency website development teams can find additional information at the Center for IT Accommodation (CITA) to aid in their design of websites accessible to people with disabilities. CITA is available at <http://www.itpolicy.gsa.gov/cita/index.htm>.

Excerpt of Original Text from Policy Instrument:

(a) Requirements for Federal departments and agencies

(1) Accessibility

(A) Development, procurement, maintenance, or use of electronic and information technology

When developing, procuring, maintaining, or using electronic and information technology, each Federal department or agency, including the United States Postal Service, shall ensure, unless an undue burden would be imposed on the department or agency, that the electronic and information technology allows, regardless of the type of medium of the technology—

(i) individuals with disabilities who are Federal employees to have access to and use of information and data that is comparable to the access to and use of the information and data by Federal employees who are not individuals with disabilities; and

(ii) individuals with disabilities who are members of the public seeking information or services from a Federal department or agency to have access to and use of information and data that is comparable to the access to and use of the information and data by such members of the public who are not individuals with disabilities.

* * *

(c) Agency evaluations

Not later than 6 months after the date of enactment of the Rehabilitation Act Amendments of 1998, the head of each Federal department or agency shall evaluate the extent to which the electronic and information technology of the department or agency is accessible to and usable by individuals with disabilities described in subsection (a)(1), compared to the access to and use of the technology by individuals described in such subsection who are not individuals with disabilities, and submit a report containing the evaluation to the Attorney General.

2.1.4. President's Memorandum on Electronic Government. December 17,1999.

Available at:
<http://www.pub.whitehouse.gov/uri-res/I2R?urn:pdi://oma.eop.gov.us/1999/12/20/5.text.1>

Application to Federal Information Technology and Web Management:

President Clinton announced twelve actions that Federal agencies can take in conjunction with private industry to provide American citizens with improved access to government services and information. The President desired Federal agencies to provide standardized access to government information and services. People should be able to find needed government information without needing to know what agency is responsible for disseminating the information. People should also be confident that that their communication with government is secure and their privacy protected.

Excerpt of Original Text from Policy Instrument:

2. The heads of executive departments and agencies (agencies) shall, to the maximum extent possible, make available online, by December 2000, the forms needed for the top 500 Government services used by the public. Under the Government Paperwork Elimination Act, where appropriate, by October 2003, transactions with the Federal Government should be available online for online processing of services. To achieve this goal, the Director of the Office of Management and Budget shall oversee agency development of responsible strategies to make transactions available online.

4. The heads of agencies shall continue to build good privacy practices into their web sites by posting privacy policies as directed by the Director of the Office of Management and Budget and by adopting and implementing information policies to protect children's information on web sites that are directed at children.

5. The head of each agency shall permit greater access to its officials by creating a public electronic mail address through which citizens can contact the agency with questions, comments, or concerns. The heads of each agency shall also provide disability access on Federal web sites.

7. The Secretaries of Health and Human Services, Education, Veterans Affairs, and Agriculture, the Commissioner of Social Security, and the Director of the Federal Emergency Management Agency, working closely with other Federal agencies that provide benefit assistance to citizens, shall make a broad range of benefits and services available though private and secure electronic use of the Internet.

9. The heads of agencies shall develop a strategy for upgrading their respective agency's capacity for using the Internet to become more open, efficient, and responsive, and to more effectively carry out the agency's mission. At a minimum, this strategy should involve: (a) expanded training of Federal employees, including employees with policy and senior management responsibility; (b) identification and adoption of "best practices" implemented by leading public and private sector organizations; (c) recognition for Federal employees who suggest new and innovative agency applications of the Internet; (d) partnerships with the research community for experimentation with advanced applications; and (e) mechanisms for collecting input from the agency's stakeholders regarding agency use of the Internet.

2.2. FEDERAL INFORMATION POLICY

2.2.1. U.S. Information Infrastructure Task Force (IITF). 1993 *The National Information Infrastructure: Agenda for Action.*

Available at: <http://metalab.unc.edu/nii/toc.html>.

Application to Federal Information Technology and Web Management:

This document has served as a blueprint for President Clinton's National Information Infrastructure Initiative. The document outlined the President's map for developing a National Information Infrastructure (NII) listing goals and the necessary actions to accomplish the goals. Goal nine called for an increase in access to government information and to improve government procurement. This goal called for Federal agencies in conjunction with state and local governments to use the NII to expand the information available to the public, and make that information so it can be accessed easily and equitably.

Excerpt of Original Text from Policy Instrument:

9. Provide Access to Government Information and Improve Government Procurement

Thomas Jefferson said that information is the currency of democracy. Federal agencies are among the most prolific collectors and generators of information that is useful and valuable to citizens and business. Improvement of the nation's information infrastructure provides a tremendous opportunity to improve the delivery of government information to the taxpayers who paid for its collection; to provide it equitably, at a fair price, as efficiently as possible.

The Federal government is improving every step of the process of information collection, manipulation, and dissemination. The Administration is funding research programs that will improve the software used for browsing, searching, describing, organizing, and managing information. But it is committed as well to applying those tools to the distribution of information that can be useful to the public in their various roles as teachers, researchers, businesspeople, consumers, etc.

Action: Improve the accessibility of government information. IITF working groups will carefully consider the problems associated with making government information broadly accessible to the public electronically. Additionally, several inter-agency efforts have been started to ensure that the right information is stored and available. Finally, to help the public find government information, an inter-agency project has been formed to develop a virtual card catalogue that will indicate the availability of government information in whatever form it takes.

Action: Enhance citizen access to government information. In June 1993, OMB prescribed new polices pertaining to the acquisition, use, and distribution of government information by Federal agencies. Among other things, the policies mandate that, in distributing information to the public, Federal agencies should recoup only those costs associated with the dissemination of that information, not with its creation or collection. Moreover, a number of inter-agency efforts are under way to afford greater public access to government information. One project seeks to turn thousands of local and field offices of various Federal agencies into Interactive Citizen Participation Centers, at which citizens can communicate with the public affairs departments of all Federal agencies.

2.2.2 Privacy and the National Information Infrastructure: Principles for Providing and Using Personal Information. Privacy Working Group. Information Policy Committee. Information Infrastructure Task Force. (June 6, 1995.)

Available at: <http://www.iitf.nist.gov/ipc/ipc/ipc-pubs/niiprivprin_final.html>.

Application to Federal Information Technology and Web Management:

The Privacy Working Group (PWG), part of the Information Infrastructure Task Force (IITF) was formed to develop guidelines or principles for providing and using personal information in the electronic environment or within the

National Information Infrastructure (NII). Personal information refers to information such as identifying information, social security number, name, address, and phone number; financial records or statements; and health records. The principles were designed to provide guidelines to personal information users and personal information providers. These principles are not legally binding, and only serve to guide. In developing the standards, PWG generally followed international standards such as the OECD guidelines written in 1980.

Federal website developers and administrators need to be concerned with

- *Acquisition Principle*: only collect and keep information that supports current or planned activities, and assess the impact on privacy in collecting, disclosing, or using a person's personal information.
- *Protection Principle*: use appropriate technical and managerial controls to protect the integrity, confidentiality, and quality of the personal information.
- *Notice Principle*: personal information providers should be informed by the website as to why information collection is occurring; how the information is to be used; what steps are taken to protect the information; consequences of providing or withholding information; any rights of redress. What happens if information loses integrity, or is leaked.
- *Fairness principle*: Information should be used in the manner in which the user was told it would be used.
- *Education principle*: Information users should educate themselves and the public about how information privacy can be maintained.

2.2.3. COPYRIGHT ACT

2.2.3.1 Statute: Digital Millennium Copyright Act. (Public Law 105-304, Title 1, Sec. 103(a), codified at 17 U.S.C. §§ 1201-1205). 1998.

Available at: < http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=1994_uscode_suppl_4&docid=17usc1201 >

Application to Federal Information Technology and Web Management:

This law amended Title 17 of the U.S. Code to implement the World Intellectual Property Organization Copyright Treaty and Performance and Phonograms Treaty. The Digital Millennium Copyright Act (DMCA) incorporated into Title 17 provisions preventing the circumvention of technological protections of works. The DMCA also added provisions prohibiting the removal or alteration of "copyright management information." As such, the DMCA tailors protection to holders of copyright in electronic media. It prohibits the circumvention of technological measures that control access to protected works and/or manufacturing or trafficking in technology designed to circumvent measures that control access to, or protect rights of copyright owners in, such works. The act provides exemptions for nonprofit libraries, archives, or educational institutions that gain access to a commercially exploited copyrighted work solely to make a good faith determination of whether to acquire such work, subject to certain restrictions; for purposes of achieving interoperability of computer programs; and for authorized investigative, protective, information security, or intelligence activities of the United States, a state, or political subdivision of a state.

2.2.3.2 Implementing Guidance: The Copyright Office completed a statutorily mandated study on the Digital Millennium Copyright Act in December 1998. The study is available at <http://www.loc.gov/copyright/legislation/dmca.pdf>.

2.2.4 RIGHTS OF ACCESS TO INFORMATION

2.2.4.1 FREEDOM OF INFORMATION

2.2.4.1.1. Statute: Freedom of Information Act. (Public Law 89-487, codified as amended, 5 U.S.C. § 552).
Available at: < http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=1994_uscode_suppl_4&docid=5usc552>

Application to Federal Information Technology and Web Management:

The purpose of the *Freedom of Information Act* ("FOIA") is to allow public access to agency records, thereby promoting an informed citizenry. Unless exempted under section 552a, agency records are subject to proper request. EFOIA eliminated doubt that information stored on computers is a "record" within the definition of the statute. Because digital information, including information posted by a Federal agency on its website, falls under the statutory definition of a record, Federal agencies are responsible for providing information in this format just as they are for providing print materials.

Certain government bodies are exempted from the requirements of FOIA because they fall outside the definition of "agency" set forth in the statute, and the law contains nine exemptions for various classes of records. As noted in the section dealing with the Privacy Act, certain types of information are protected from public disclosure and consequently their disclosure is not required under FOIA. Each section is defined in terms of the other: records required under FOIA include everything not protected under the Privacy Act.

2.2.4.1.2. Statute: Electronic Freedom of Information Act Amendments of 1996. (Public Law 104-231, amending 5 U.S.C. §552).

Available at: < http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=104_cong_public_laws&docid=f:publ231.104.pdf >

Application to Federal Information Technology and Web Management:

The Electronic Freedom of Information Act Amendments of 1996 (EFOIA) encourage government agencies to use new technology to enhance public access to agency records and information. The act amends the FOIA to define "record" to mean information in records maintained by an agency in any format. Agencies responding to a request for records also must make reasonable efforts to search for the records in electronic form or format.

All agencies are to make available electronically frequently requested records obtainable under FOIA and are to maintain an Electronic Reading Room. These Electronic Reading Rooms present special interest collections as well as "policy statements, administrative rulings and manuals, and other materials that affect members of the public." For a report on agency compliance see the OMB Watch study report at <http://www.ombwatch.org/site/info/efoia99/efoiareport.html>.

Excerpt of Original Text from Policy Instrument:

> Section 3. Application of Requirements to Electronic Format Information
>
> (f) For purposes of this section, the term--
>
> (2) "record" and any other term used in this section in reference to information includes any information that would be an agency record subject to the requirements of this section when maintained by an agency in any format, including an electronic format.
>
> Section 5. Honoring Form or Format Requests
>
> (C) In responding under this paragraph to a request for records, an agency shall make reasonable efforts to search for the records in electronic form or format, except when such efforts would significantly interfere with the operation of the agency's automated information system.

2.2.4.1.3. Statute: Privacy Act of 1974. (Public Law 93-579, Sec. 3, codified as amended at 5 U.S.C. § 552a).

Available at: < http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=1994_uscode_suppl_4&docid=5usc552a >.

Application to Federal Information Technology and Web Management:

Congress intended the Privacy Act to protect citizens against disclosure of their personal information unless required by the Freedom of Information Act, section 552. Congress was especially concerned with the automation of information retrieval and technological advances in information storage when it enacted this legislation. The legislative history of the Privacy Act shows it contemplates the problem of individuals' increased personal exposure through the automation of government operations and development of computerized government systems.[4]

The Privacy Act describes the manner in which personal information of individuals can be disclosed by the government. No record containing personal information may be disclosed without the prior written consent of the individual to whom the information pertains. The act also requires agencies to allow individuals access to their records.

Excerpt of Original Text from Policy Instrument:

> (b) Conditions of Disclosure.
> No agency shall disclose any record which is contained in a system of records by any means of communication to any person, or to another agency, except pursuant to a written request by, or with the prior written consent of, the individual to whom the record pertains, unless disclosure of the record would be -
>
> (e) Agency Requirements. - Each agency that maintains a system of records shall
>
> (1) maintain in its records only such information about an individual as is relevant and necessary to accomplish a

---

[4] See Senator Ervin's speech on June 11, 1974: "It is a rare person who has escaped the quest of modern government for information. ... When this quite natural tendency of Government to acquire and keep and share information about citizens is enhanced by computer technology and when it is subjected to the unrestrained motives of countless political administrators, the resulting threat to individual privacy make it necessary for Congress to reaffirm the principle of limited, responsive Government on behalf of freedom." Senate Rpt. (of Government Operations Committee) No. 93-1183, page 6919; Thomas v. U.S. Dept. of Energy, 719 F3d 342 (1983).]

purpose of the agency required to be accomplished by statute or by executive order of the President;
(2) collect information to the greatest extent practicable directly from the subject individual when the information may result in adverse determinations about an individual's rights, benefits, and privileges under Federal programs;
(3) inform each individual whom it asks to supply information, on the form which it uses to collect the information or on a separate form that can be retained by the individual.

2.2.4.1.3.1. Implementing Guidance: Appendix I to OMB Circular No. A-130 - Federal Agency Responsibilities for Maintaining Records About Individuals

"This Appendix describes agency responsibilities for implementing the reporting and publication requirements of the Privacy Act of 1974, 5 U.S.C. 552a, as amended (hereinafter "the Act"). It applies to all agencies subject to the Act. Note that this Appendix does not rescind other guidance OMB has issued to help agencies interpret the Privacy Act's provisions, e.g., Privacy Act Guidelines (40 FR 28949-28978, July 9, 1975), or Final Guidance for Conducting Matching Programs (54 FR at 25819, June 19, 1989)."

2.2.4.1.3.2. Implementing Guidance: Instructions on complying with President's Memorandum of May 14, 1998, "Privacy and Personal Information in Federal Records."

Available at: <http://www.pub.whitehouse.gov/urires/I2R?urn:pdi://oma.eop.gov.us/1998/5/14/8.text.1>.

Application to Federal Information Technology and Web Management:

In this Memorandum the President directed Federal agencies to review their current information practices and ensure that they are being conducted in accordance with the Privacy Act of 1974. The President also directed OMB to issue instructions to the agencies on how to conduct this review.

Excerpt of Original Text from Policy Instrument:

1. Designate a Senior Official for Privacy Policy
Each agency head should have already designated a senior official within the agency to assume primary responsibility

for privacy policy, in accordance with the President's Memorandum. This individual will not necessarily be the same person who is responsible for implementation of the Privacy Act. For most Cabinet agencies, the appropriate official would probably be a policy official at the Assistant Secretary level, or equivalent, who in a position within the agency to consider privacy policy issues on a national level.

2. Review and Improve the Management of Privacy Act Systems of Records
Each agency shall conduct a thorough review of its systems of records, system of records notices, and routine uses in accordance with the criteria and guidance below. Because the President directed agencies to review systems of records, we have provided guidance on a subset of the Privacy Act's requirements that are particularly relevant to systems of records.

2.2.4.1.3.3. Implementing Guidance: M-99-18. Director Jacob J. Lew's Memorandum for the Heads of Executive Departments and Agencies on Privacy Policies on Federal Web Sites. 1999.
Available at: <http://cio.gov/docs/webprivl.htm>.

Application to Federal Information Technology and Web Management:

This memo instructs Departments and Agencies to display their privacy policies on their websites, and to comply with various laws and regulations governing privacy policies, such as the Privacy Act, OMB Circular No. A-130, and Principles for Providing and Using Personal Information published by the Information Infrastructure Task Force on June 6, 1995. Federal agency web developers must include a privacy statement on their departmental websites.

2.2.4.1.3.4. Implementing Guidance: M-00-13, Director Jacob J. Lew's Memorandum for the Heads of Executive Departments and Agencies on Privacy Policies and Data Collection on Federal Web Sites, June 22, 2000
Available at: <
http://www.whitehouse.gov/OMB/memoranda/m00-13.html>.

Application to Federal Information Technology and Web Management

"Particular privacy concerns may be raised when uses of web technology can track the activities of users over time and across different web sites. . . "Cookies" – small bits of software that are placed on a web user's hard drive – are a principal example of current web technology that can be used this way. . . Because of the unique laws and traditions about government access to citizens' personal information, the presumption should be that "cookies" will not be used a Federal web sites. Under this new Federal policy, "cookies" should not be used at Federal web sites, or by contractors when operating web sites on behalf of agencies, unless, in addition to clear and conspicuous notice, the following conditions are met: a compelling need to gather the data on the site; appropriate and publicly disclosed privacy safeguards for handling of information derived from "cookies"; and personal approval by the head of the agency."

Also, ""It is federal policy that all Federal web sites and contractors when operating on behalf of agencies shall comply with the standards set forth in the Children's Online Privacy Protection Act of 1998 with respect to the collection of personal information online at web sites directed to children."

2.2.4.1.4. Statute: Public Printing and Documents: Depository Library Program (44 U.S.C. 1902).

Available at: http://frwebgate1.access.gpo.gov/cgi-bin/waisgate.cgi?WAISdocID=040147185+0+0+0&WAISaction=retrieve

Application to Federal Information Technology and Web Management:

Agencies are to make their publications available to depository libraries through the Superintendent of Documents.

Excerpt of Original Text from Policy Instrument:

Sec. 1902. Government publications, except those determined by their issuing components to be required for official use only or for strictly administrative or operational purposes which have no public interest or educational value and publications classified for reasons of national security, shall be made available to depository libraries through the facilities of the Superintendent of Documents for public information.

2.2.5. PAPERWORK REDUCTION ACT

2.2.5.1. Statute: Paperwork Reduction Act of 1995. (Public Law 104-13, codified at 44 U.S.C. 3501 et seq.).

Available at:
P.L. 104-13: < http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=104 cong public laws&docid=f:publ13.104.pdf >.
44 U.S.C. 3501: < http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=1994 uscode suppl 3&docid=44usc3501>.

Application to Federal Information Technology and Web Management:

The Paperwork Reduction Act (PRA) intends to minimize the paperwork burden for individuals, small businesses, educational and nonprofit institutions, Federal contractors, state, local, and tribal governments, and other persons which results from the collection of information by or for the Federal government. PRA is also designed to coordinate, integrate, and make uniform Federal information resources management policies and practices in order to improve the efficiency of government programs. The 1995 amendments to the PRA added extensive agency responsibilities for information dissemination, responsibilities that are applicable to agency websites. Suggested implementation of this law in conjunction with the Government Performance and Results Act of 1993 and the Information Technology Management Reform Act of 1996 occurs in Executive Order 13011, Federal Information Technology. This implementation was followed up with another memorandum issued by the President on December 17, 1999, Memorandum on E-Government, to improve the interoperability of government agencies and the sharing of information resources.

Excerpt of Original Text from Policy Instrument:

> Sec. 2. Coordination of Federal Information Policy.
>
> Chapter 35 of title 44, United States Code, is amended to read as follows:
>
> * * *
>
> "Section 3504. Authority and Functions of Director
>
> "(a)(1) The Director shall oversee the use of information resources to improve the efficiency and effectiveness of governmental operations to serve agency missions, including burden reduction and service delivery to the public. In performing such oversight, the Director shall—

"(A) develop, coordinate and oversee the implementation of Federal information resources management policies, principles, standards, and guidelines; and

"(B) provide direction and oversee—

* * *

"(v) privacy, confidentiality, security, disclosure, and sharing of information; and

"(vi) the acquisition and use of information technology.

* * *

"Section 3506. Federal Agency Responsibilities

* * *

"(d) With respect to information dissemination, each agency shall--

(1) ensure that the public has timely and equitable access to the agency's public information, including ensuring such access through--

(A) encouraging a diversity of public and private sources for information based on government public information;

(B) in cases in which the agency provides public information maintained in electronic format, providing timely and equitable access to the underlying data (in whole or in part); and

(C) agency dissemination of public information in an efficient, effective, and economical manner;

(2) regularly solicit and consider public input on the agency's information dissemination activities;

(3) provide adequate notice when initiating, substantially modifying, or terminating significant information dissemination products;"

* * *

Section 3511. Establishment and Operation of the Government Information Locator System

* * *

(a) In order to assist agencies and the public in locating information and to promote information sharing and equitable access by the public, the Director shall - (1) cause to be established and maintained a distributed agency-based electronic Government Information Locator Service (hereafter in this section referred to as the "Service"), which shall identify the major information systems, holdings, and dissemination products of each agency;

2.2.5.1. Implementing Guidance: Office of Management and Budget (OMB), Circular A-130, Management of Federal Information Resources. 1996. (61 FR 6428)

Available at:
<http://www.whitehouse.gov/OMB/circulars/a130/a130.html>.

Application to Federal Information Technology and Web Management:

Circular A-130 provides uniform government-wide information resources management policies as required by the Paperwork Reduction Act of 1980 and as amended by the Paperwork Reduction Act of 1995 (44 U.S.C. 35). This policy instrument provides a framework for the development of an information management plan to aid Federal agencies in the development of their websites.

Excerpt of Original Text from Policy Instrument:

> 8. Policy. a. Information Management Policy
> 1. Information Management Planning. Agencies shall plan in an integrated manner for managing information throughout its life cycle. Agencies shall:
> (a) Consider, at each stage of the information life cycle, the effects of decisions and actions on other stages of the life cycle, particularly those concerning information dissemination
> (e) Integrate planning for information systems with plans for resource allocation and use, including budgeting, acquisition, and use of information technology;
>
> 8. Policy. b. Information Systems and Information Technology Management
> 1. Evaluation and Performance Measurement. Agencies shall promote the appropriate application of Federal information resources as follows:
> (a) Seek opportunities to improve the effectiveness and efficiency of government programs through work process redesign and the judicious application of information technology;
> (b) Prepare, and update as necessary throughout the information system life cycle, a benefit-cost analysis for each information system:

9. Assignment of Responsibilities. c. Department of Commerce. The Secretary of Commerce shall:
4. Conduct studies and evaluations concerning telecommunications technology, and concerning the improvement, expansion, testing, operation, and use of Federal telecommunications systems and advise the Director, OMB, and appropriate agencies of the recommendations that result from such studies;

2.2.6. CLINGER-COHEN ACT

2.2.6.1. Statute: Information Technology Management Reform Act of 1996. (Public Law 104-106, Division E). 1996. Amended by Public Law 104-208, Division A, Title I, Sec. 101(f) (Title VIII, Sec. 808(b)), providing that this act (and the Federal Acquisition Reform Act of 1996 (Public Law 104-106, Division D)) may be cited as the "Clinger-Cohen Act of 1996."

Available at:
P.L. 104-106: < http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=104_cong_public_laws&docid=f:publ106.104.pdf >
P.L. 104-208: < http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=104_cong_public_laws&docid=f:publ208.104.pdf >

Application to Federal Information Technology and Web Management:

The Clinger-Cohen Act is intended to address the management of IT in the Federal government. It is to accomplish this goal through a variety of methods, including the use of capital planning for IT acquisitions and investments, the establishment of Chief Information Officer (CIO) positions in Federal departments and agencies, and the requirement of performance measurements of IT. The CIO, through IT, would also be responsible for making government more effective, efficient, and productive, and include the implementation of policies affecting Federal agency Web development. The CIO has agency responsibility for IT management and development and reports directly to the head of the agency. As regard performance measures, the Clinger-Cohen Act represents the specific application of the Government Performance and Results Act to the area of IT.

Excerpt of Original Text from Policy Instrument:

Section 5112. Capital Planning And Investment Control
(b) USE OF INFORMATION TECHNOLOGY IN FEDERAL PROGRAMS- The Director shall promote and be responsible for

improving the acquisition, use, and disposal of information technology by the Federal Government to improve the productivity, efficiency, and effectiveness of Federal programs, including through dissemination of public information and the reduction of information collection burdens on the public
(f) USE OF BEST PRACTICES IN ACQUISITIONS- The Director shall encourage the heads of the executive agencies to develop and use the best practices in the acquisition of information technology.

Section 5113. Performance-Based and Results-Based Management
(a) IN GENERAL- The Director shall encourage the use of performance-based and results-based management in fulfilling the responsibilities assigned under section 3504(h), of title 44, United States Code.
(b) Evaluation of Agency Programs and Investments-
(1) REQUIREMENT- The Director shall evaluate the information resources management practices of the executive agencies with respect to the performance and results of the investments made by the executive agencies in information technology.
(2) DIRECTION FOR EXECUTIVE AGENCY ACTION- The Director shall issue to the head of each executive agency clear and concise direction that the head of such agency shall-
(A) establish effective and efficient capital planning processes for selecting, managing, and evaluating the results of all of its major investments in information systems

2.2.6.2. Implementing Guidance:

2.2.6.2.1. Executive Order

Federal Information Technology. (Executive Order 13011). 1996.
Available at:
< http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=1996_register&docid=fr19jy96-133.pdf>

Application to Federal Information Technology and Web Management:

This Executive Order links the Clinger-Cohen Act, the PRA, and the GPRA. It formalizes OMB's oversight of IT management and stresses the importance of performance-based planning and implementation of Federal IT. Executive Order 13011 also creates the Chief Information Officer Council, the Government Information Technology Services Board, and the Information Technology Resources Board. Also falling under the domain of this executive order are the establishment of interagency support structures to share IT ideas, minimize duplication, and increase interoperability; and design technology procedures and standards. The order does not formally define the support structure. Federal web site design under this executive order should be interoperable and standardized with other agencies. Website design must also operate within the realm of the Clinger-Cohen Act, the PRA, and the GPRA. The CIO would be in charge of overseeing the design with ultimate control still resting with the OMB.

Excerpt of Original Text from Policy Instrument:

Section 1. Policy. It shall be the policy of the United States Government that executive agencies shall: * * *
(b) refocus information technology management to support directly their strategic missions, implement an investment review process that drives budget formulation and execution for information systems, and rethink and restructure the way they perform their functions before investing in information technology to support that work;
(c) establish clear accountability for information resources management activities by creating agency Chief Information Officers(CIOs) with the visibility and management responsibilities necessary to advise the agency head on the design, development, and implementation of those information systems. These responsibilities include: (1) participating in the investment review process for information systems; (2) monitoring and evaluating the performance of those information systems on the basis of applicable performance measures; and, (3) as necessary, advising the agency head to modify or terminate those systems....

Section 2. Responsibilities of Agency Heads. The head of each executive agency shall: (a) effectively use information technology to improve mission performance and service to the public;
(b) strengthen the quality of decisions about the employment of information resources to meet mission needs through integrated analysis, planning, budgeting, and evaluation processes, including:
* * *
(2) establishing mission-based performance measures for information systems investments, aligned with agency performance plans prepared pursuant to the Government Performance and Results Act of 1993 (Public Law 103-62)....

2.2.6.2.2. OMB Circular: Proposed Revision of OMB Circular No. A-130, Management of Federal Information Resources, April 13, 2000

Available at:
http://www.whitehouse.gov/omb/federeg/reva130.pdg.

Application to Federal Information Technology and Web Management:

In proposing to revise OMB Circular No. A-130, OMB announced that its primary reason for doing so was to implement provisions of the Clinger-Cohen Act. Agencies must develop annually an Information Resources Management Plan. The plan must include an annual performance plan as required by GPRA. This must include an accountability report, comparing actual performance with expected performance. Their benefit-cost analyses of information systems must include performance measures. In its capital planning process, each agency must institute performance measures that monitor actual performance as compared with expected results. They must also conduct evaluations of information systems and of information resource management processes.

2.2.7. SECURITY

2.2.7.1. Statute: Computer Security Act of 1987. (Public Law 100-235, codified in part as amended at 15 U.S.C. §§ 278g-3, 278g-4). 1988.

Available at: <http://cio.doe.gov/ucsp/csa.htm>.

Application to Federal Information Technology and Web Management:

The Computer Security Act of 1987establishes in law for information technology the basic principle of security, namely, security commensurate with the risk and magnitude of the harm resulting from the loss, misuse, or unauthorized access to or modification of information. It also creates a means, through the National Institute of Standards and Technology (NIST), for establishing minimum acceptable security practices for Federal computer systems without limiting the scope of security measures already planned or in use. The act requires each agency with a Federal computer system to establish a plan for the security and privacy of sensitive information, and prescribes "cost effective" rather than "absolute" computer security. The NIST is responsible for developing standards and guidelines necessary for assuring the protection of sensitive information. Federal websites offer one more entry point through which security can be breached. Federal CIOs must utilize the most recent proven effective hardware and software to protect sensitive departmental information and computer systems.

Congress is currently considering H.R. 2413, the Computer Security Enhancement Act of 1999, available at <http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=106_cong_bills&docid=f:h2413ih.txt.pdf> This bill would enhance the ability of NIST to improve computer security for nonclassified information on Federal computer systems. It would also promote the use of private sector security technology to protect Federal computer systems. Rather than government driving security technology, private industry or the market would be responsible for developing security technology.

Excerpt of Original Text from Policy Instrument:

Section 3. Establishment of Computer Standards Program

The Act of March 3, 1901, (15 U.S.C. 271-278h), is amended—

* * *

(2) by redesignating section 20 as section 22, and by inserting after section 19 the following new sections: "SEC. 20. (a) The National Bureau of Standards shall—

* * *

"(3) have responsibility within the Federal Government for developing technical, management, physical, and administrative standards and guidelines for the cost-effective security and privacy of sensitive information in Federal computer systems except [as specified in the law];

* * *

"(6) develop validation procedures for, and evaluate the effectiveness of, standards and guidelines developed pursuant to paragraphs (1), (2), and (3) of this subsection through research and liaison with other government and private agencies."

2.2.7.2. Implementing Guidance

2.2.7.2.1. OMB Circular No. A-130, Appendix III, Security of Federal Automated Information Resources

Available at: <http://www.whitehouse.gov/OMB/circulars/a130/a130.html>.

Application to Federal Information Technology and Web Management

"This Appendix establishes a minimum set of controls to be included in Federal automated information security programs; assigns Federal agency responsibilities for the security of automated information; and links agency automated information security programs and agency management control systems established in accordance with OMB Circular No. A-123. The Appendix revises procedures formerly contained in Appendix III to OMB Circular No. A-130 (50 FR 52730; December 24, 1985), and incorporates requirements of the Computer Security Act of 1987 (P.L. 100-235) and responsibilities assigned in applicable national security directives."

2.2.7.1.2. Presidential Decision Directive 63, "Protecting America's Critical Infrastructures."

Available at <http://www.pub.whitehouse.gov/uri-res/I2R?urn:pdi://oma.eop.gov.us/1998/5/26/1.text.1>.

Application to Federal Information Technology and Web Management:

This Presidential Directive built on the recommendations of the President's Commission on Critical Infrastructure Protection and sets a goal of a reliable, interconnected, and secure information system infrastructure by the year 2003, and significantly increased security to government systems by the year 2000, by: Immediately establishing a national center to warn of and respond to attacks. Ensuring the capability to protect critical infrastructures from intentional acts by 2003. PDD 63 addressed the cyber and physical infrastructure vulnerabilities of the Federal government by requiring each department and agency to work to reduce its exposure to new threats. It set up a new structure to deal with this important challenge: a National Coordinator; the National Infrastructure Protection Center (NIPC) s; Information Sharing and Analysis Centers (ISACs); a National Infrastructure Assurance Council; and The Critical Infrastructure Assurance Office to provide support to the National Coordinator's work with government agencies and the private sector in developing a national plan. The applicability to agency websites is that PPD 63 is fundamental for website security and effectively requires that agencies have performance measures of website security.

2.2.8. ELECTRONIC COLLECTION AND DIGITAL SIGNATURES

2.2.8.1. Statute: Government Paperwork Elimination Act. (Public Law 105-277, Division C, Title XVII, amending 44 U.S.C.). 1998.

Available at:
<http://thomas.loc.gov/cgi-bin/bdquery/z?d105:HR04328:|TOM:/bss/d105query.html|>.

Application to Federal Information Technology and Web Management:

The Government Paperwork Elimination Act (GPEA) provides for Federal agencies to give persons who are required to maintain, submit, or disclose information the option of doing so electronically, when practicable, by October 21, 2003. In addition, GPEA directs that electronic authentication (electronic signature) methods be used to verify the identity of the sender and the integrity of the electronic content. The Director of the Office of Management and Budget is required to develop procedures for the use and acceptance of electronic signatures by executive agencies and, in cooperation with the National Telecommunications and Information Administration, to conduct and report to Congress an ongoing study of the use of electronic signatures on paperwork reduction and electronic commerce, individual privacy, and the security and authenticity of transactions.

Excerpt of Original Text from Policy Instrument:

Section 1. Policy
The Office of Management and Budget is directed to maintain compatibility with standards and technology for electronic signatures generally used in commerce and industry and by State governments and to ensure that electronic signatures are as reliable as is appropriate for the purpose in question ant that the electronic record keeping systems readily preserve the information submitted.

Section 2. Procedures
An agency's determination of which technology is appropriate for a given transaction must include a risk assessment, and an evaluation of targeted customer or user needs. Performing a risk assessment to evaluate electronic signature alternatives should not be viewed as an isolated activity or an end in itself. These agency risk assessments should draw from and feed into the interrelated requirements of the Paperwork Reduction Act, the Computer Security Act, the Government Performance and Results Act, the Clinger-Cohen Act, the Federal Managers Financial Integrity Act, and the Chief Financial Officers Act.

2.2.8.2. Implementing Guidance: Implementation of the Government Paperwork Elimination Act. 1999.

Available at: < http://www.whitehouse.gov/omb/fedreg/gpea2.html >.

Application to Federal Information Technology and Web Management:

The Government Paperwork Elimination Act provides for Federal agencies, by October 21, 2003, to give persons who are required to maintain, submit, or disclose information the option of doing so electronically when practicable as a substitute for paper, and to use electronic authentication (electronic signature) methods to verify the identity of the sender and the integrity of electronic content. The Act specifically provides that electronic records and their related electronic signatures are not to be denied legal effect, validity, or enforceability merely because they are in electronic form. OMB's implementation of the Act is in two parts. The first part sets forth the policies and procedures for implementing the Act, and requesting certain specific agencies to provide assistance in particular areas. The second part is intended to provide Federal managers with practical implementation guidance.

Excerpt of Original Text from Policy Instrument:

Section 2. What GPEA procedures should agencies follow?

a. Accordingly, agencies should develop and implement plans, supported by an assessment of whether to use and accept documents in electronic form and to engage in electronic transactions. The assessment should weigh costs and benefits and involve an appropriate risk analysis, recognizing that low-risk information processes may need only minimal consideration, while high-risk processes may need extensive analysis.
c. The assessment should develop strategies to mitigate risks and maximize benefits in the context of available technologies, and the relative total costs and effects of implementing those technologies on the program being analyzed. The assessment also should be used to develop baselines and verifiable performance measures that track the agency's mission, strategic plans, and tactical goals, as required by the Clinger-Cohen Act.
d. In addition to serving as a guide for selecting the most appropriate technologies, the assessment of costs and benefits should be designed so that it can be used to generate a business case and verifiable return on investment to support agency decisions regarding overall programmatic direction, investment decisions, and budgetary priorities.

Section 3. How should agencies implement these policies and procedures?
a. To ensure a smooth and cost-effective transition to an electronic government that provides improved service to the public, each agency must:

(1) Develop a plan (including a schedule) by October, 2000 that provides for continued implementation, by the end of Fiscal Year 2003, of optional electronic maintenance, submission, or

transaction of information when practicable as a substitute for paper, including through the use of electronic signatures when practicable. A copy of the plan should be provided to OMB.

(7) Consider the record keeping functionality of any systems that store electronic documents and electronic signatures, to ensure users have appropriate access to the information and can meet the agency's record keeping needs.

> Section 2. Procedures
> b. An agency's determination of which technology is appropriate for a given transaction must include a risk assessment, and an evaluation of targeted customer or user needs. Performing a risk assessment to evaluate electronic signature alternatives should not be viewed as an isolated activity or an end in itself. These agency risk assessments should draw from and feed into the interrelated requirements of the Paperwork Reduction Act, the Computer Security Act, the Government Performance and Results Act, the Clinger-Cohen Act, the Federal Managers Financial Integrity Act, and the Chief Financial Officers Act.
>
> Section 3. Agency Responsibilities
> a. In order to ensure a smooth and cost-effective transition to a more electronic government providing improved service to the public, each agency shall:
> 1. include in its strategic IT plans supporting program responsibilities (required under OMB Circular A-11) a summary of the agency's schedule to implement optional electronic maintenance, submission, or disclosure of information when practicable as a substitute for paper, including through the use of electronic signatures when practicable, by the end of Fiscal Year 2003 (note: agencies need not revise their reports on Federal purchasing and payment already required by OMB M-99-02, but should include the automation of purchasing and payment functions in their schedule)

2.2.9. FEDERAL RECORDS

2.2.9.1. Statute: Federal Records Act, Title 44 U.S. Code, Chapter 31, Records Management by Federal Agencies

Available from < http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=1994_uscode_suppl_3&docid=44usc3101>

"The head of each Federal agency shall make and preserve records containing adequate and proper documentation of the organization, functions, policies, decisions, procedures, and essential transactions of the agency and designed to furnish the information necessary to protect the legal and financial rights of the Government and of persons directly affected by the agency's activities. "

22.9.2. Implementing Guidance:

2.2.9.2.1. NARA Bulletin 98-02. 1998 [disposition of electronic records].
Available at: <http://www.nara.gov/records/policy/b9802.html>.

Application to Federal Information Technology and Web Management:

NARA Bulletin 98-02 reminds Federal agencies of their obligations under Federal law, 36 CFR Part 1234, to provide adequate documentation of agency activities, and provides guidance to Federal agencies in accomplishing this obligation. Agency CIO's are obligated to ensure that website records, web pages, are adequately documented and preserved.

Excerpt of Original Text from Policy Instrument:

> a. Agency heads are required by 44 U.S.C. 3101 to "make and preserve records containing adequate and proper documentation of the organization, functions, policies, decisions, procedures, and essential transactions of the agency. . . ." NARA regulations at 36 CFR Part 1222 specify agency record keeping responsibilities, including standards for record keeping requirements. NARA regulations at 36 CFR Part 1234 Subpart C specify standards for managing the creation, use, preservation, and disposition of electronic records.

2.2.9.2.2. NARA Bulletin 99-05. 1999. [Disposition of Electronic Records (NARA Bulletin 98-02)]
Available at: <http://www.nara.gov/records/policy/b9905.html>.

Application to Federal Information Technology and Web Management:

NARA Bulletin 99-05 informs Federal agencies that they should continue to follow NARA Bulletin 98-02, and reminds agency heads as to their responsibilities to maintain adequate documentation of records. Although not specifically stated, Web pages should be considered Federal agency records, and subject to the same guidelines as print records.

2.2.9.2.3.General Record Schedule 20 (GRS 20). 1995 version. [Electronic Records Workgroup]
Available at: < http://ardor.nara.gov/grs/grs20.html>.

Application to Federal Information Technology and Web Management:

General Records Schedule 20 (GRS 20) was first published in 1972 as an attempt to address record management for electronic materials. Since then GRS 20 has been rewritten five times with the latest version being in 1995. The 1995 version of GRS 20 has been through several actions in court (see page ?), and as of March 6, 2000, it still stands.

The 1995 version of GRS 20 addresses the topic of disposal for certain electronic records and the paper or microform records associated with them. If a department desires to dispose of electronic records, which are not covered by GRS 20, the department must file for authorization using SF 115s, Request for Records Disposition Authority. Web pages and documents associated with Web pages may be Federal records, and if so, their disposal should be regulated by NARA.

2.3. JUDICIAL OPINIONS

An enormous body of case law exists interpreting certain policy instruments affecting aspects of public access to government information, while other policy instruments have spawned no case law. The following materials illustrate some courts' approaches to fine-tuning statutory language, with their resulting potential effects on Federal information technology management. A survey of all relevant case law is beyond the scope of this chapter.

2.3.1. Freedom of Information Act (FOIA)

The cases speak to courts' willingness to apply a liberal interpretation to statutes governing public access based on a perceived statutory intent to promote open government. Courts check this impulse where the duty to provide this information seems onerous for the agency or when the information bears slight resemblance to that identified in the statute.

Cases pertaining to:

Freedom of Information Act, Public Law 89-487, codified as amended at 5 U.S.C. § 552. Electronic Freedom of Information Act Amendments of 1996, Public Law 104-231, amending 5 U.S.C. §552.

1. Regulation promulgated by National Archives and Records Administration (GRS 20) authorizing disposal of electronic government records without distinguishing significant records for different treatment violated the Records Disposal Act and interfered with plaintiff's right, under EFOIA, to request electronic records. *Public Citizen v. Carlin*, 2 F. Supp 2d 1 (D.D.C. 1997); reversed by *Public Citizen v. Carlin*, 184 F.3d 900 (D.C. Cir. 1997) (agencies expected to develop their own website records management policies within existing NARA guidelines subject to NARA approval), available at <http://www.cadc.uscourts.gov/common/opinions/199908/97-5356a.txt>; certiorari denied by *Public Citizen v. Carlin*, 68 U.S.L.W. 3565, 2000 U.S. LEXIS 1744, 2000 WL 240442 (March 6, 2000).

2. Federal agencies are not required to provide records concerning software over which they lack "sufficient control"; software and technical documentation is protected by FOIA exemption for trade secrets and commercial or financial information. *Gilmore v. U.S. Department of Energy*, 4 F. Supp. 2d 912, 153 A.L.R. Fed. 759 (N.D. Cal.1998).

3. Federal agencies requested to search "all records" must search relevant computer databases to comply with FOIA. *Mayock v. Immigration and Naturalization Service*, 714 F. Supp. 1558 (N.D. Cal. 1989).

4. Computer backup tapes of electronic messages are records within the meaning of FOIA. NARA must change its guidance to Federal agencies on record management. *Armstrong v. Executive Office of the President*, 877 F. Supp. 690 (D.D.C. 1995); reversed by *Armstrong v. Executive Office of the President*, 90 F.3d 553 (D.C. Cir. 1996); certiorari denied by *Armstrong v. Executive Office of the President*, 520 U.S. 1239 (1997).

Privacy Act of 1974, Public Law 93-579, Sec. 3, codified as amended at 5 U.S.C. § 552a.

1. Exemptions to FOIA under the Privacy Act of 1974 pertain to electronic records. *Manna v. United States Department of Justice*, 1994 WL 808070 (D.N.J. 1994).

2.3.2. The Copyright Act of 1976

Case law interpreting the Copyright Act of 1976 is similarly abundant and similarly limited as regards Federal information technology and electronic media. Aside from disallowing copyright protection for government work, 17 U.S.C. § 105, the statute does not directly address the interests and duties of the Federal government in its provisions.

The Digital Millennium Copyright Act amended the Copyright Act in 1998 to increase protection for authors of work in electronic media.

Individual Case Laws pertaining to:

Copyright law is governed by Title 17 of the U.S. code as amended by The Digital Millennium Copyright Act, Pub. L. 105-304, 112 Stat. 2860.

1. Compilations of facts are not protected by copyright under the "sweat-of-the-brow" doctrine. *Feist Publications v. Rural Telephone Service Co.*, 499 U.S. 340 (1991).

2. Holders of copyright may submit protected work to government agencies without fear of losing protection of copyright. *Practice Management Information Corporation v. American Medical Association*, 121 F.3d 516 (9th Cir. 1997); *Veeck v. Southern Building Code Congress International, Inc.*, 49 F. Supp 2d 885, (E.D. Tex. 1999).

2.3.4. Electronic Records

Since the Iran-Contra scandal in the late 1980s, electronic records have been the subject of a series of Federal court cases. The cases arose originally because the White House announced its intent to destroy the computer backup tapes containing the electronic mail that led to discovery of the Iran-Contra materials. Public interest groups sued to prohibit destruction on the grounds that the materials in question were federal records. In response to judicial opinions, the National Archives and Records Administration issued *General Records Schedule 20, Electronic Records* (see above). GRS-20 itself then became the subject of further litigation.

A seminal case in the series of litigation was *Public Citizen et al.* v *John Carlin et al.*, U.S. District Court, October 22, 1997. In his opinion, Judge Paul Friedman voided GRS-20, stating that the Archivist of the United States had overstepped his authority in promulgating GRS-20 and arguing, among other things, that electronic records had unique value that was not captured with paper printouts. The U.S. Court of Appeals later overturned Friedman's opinion on August 6, 1999, and the Supreme Court denied *certiorari* on March 6, 2000.

The opinions cited above are available, together with additional legal resources, at < http://www.nara.gov/records/grs20/>.

2.5. CONCLUSION

Table 2.1 is a summary presentation of the foregoing elaboration of federal policies affecting agency websites. For each topic the table shows the relevant statute, executive order, or other key document, plus implementing policy guidance, if any. The right hand column summarizes the implications for websites.

Table 2.1 Summary of Federal Policies Pertaining to Agency Websites

	Topic	Statute, Presidential Directive, or Other Document	Implementing Guidance	Website Implications
I. General Government Policy	A. Performance and Results	Government Performance and Results Act	OMB Circular A-11, Part II	Performance plans, goals, and measures for agency programs
	B. Customer Service	E.O. 12862, Setting Customer Service Standards	-	Identify customers, their needs, and set standards and benchmarks
	C. Accessible Information Technology	Rehabilitation Act, section 508	-	Information technology accessible to persons with disabilities
	D. Electronic Government	Pres. Memo on Electronic Government	-	Standardized access to and ease of finding government information, plus privacy and security
II. Federal Information Policy	A. National Information Infrastructure	NII Agenda for Action	-	Make govt. information more easily and equitably accessible
	B. Privacy and the NII	Principles for Providing and Using Personal Information	-	Guidelines to personal information users and providers
	C. Copyright	Digital Millennium Copyright Act	-	Protecting copyright in electronic media
	D. Rights of Access to Information	Freedom of Information Act	-	State FOIA procedures on websites
		Electronic Freedom of Information Act	-	Establish electronic reading room on websites
		Privacy Act	OMB Circular A-130, Appendix I	Handling of personal information
			Pres. Memo on Privacy and Personal Information in Federal Records	Review privacy policies and practices; update notices of systems of records
			M-99-18 on Privacy Policies on Federal Websites	Display privacy policies on websites
			M-00-13 on Privacy Policies and Data Collection on Federal Websites	Discouragement of and restrictions on use of "cookies" on websites; comply with COPPA
		Public Printing and Documents: Depository Library Program	-	Publications provided to depository library program.
	E. Paperwork Reduction Act	Paperwork Reduction Act	OMB Circular A-130	Framework for agency information management plan, including information dissemination
	F. Clinger-Cohen Act	Information Technology Management Reform Act	E.O. 13011, Federal Information Technology	Websites to be interoperable and standardized across government
	G. Security	Computer Security Act	Proposed Revision of OMB Circular A-130, April 13, 2000	Mission based performance measures for information systems
			OMB Circular A-130, Appendix III	Security controls for federal information systems
			PDD 63, Protecting America' Critical Infrastructures	Performance measures for website security
	H. Electronic Collection and Digital Signatures	Government Paperwork Elimination Act	OMB Notice: Implementation of the Government Paperwork Elimination Act	Increase and encourage electronic data collection and implement digital signatures

BEST COPY AVAILABLE

I. Federal Records	Federal Records Act	General Records Schedule 20, Electronic Records, and various NARA Bulletins	Provide for management of records created on websites

Reference List

Kent, Allen, ed. 1999. *Encyclopedia of Library and Information Science,* Vol. 65, Supp. 28. New York: Marcel Dekker p. 306.

National Telecommunications and Information Infrastructure (NTIA). 1999. *Falling Through the Net: Defining the Digital Divide.* Available at: http://www.ntia.doc.gov/ntiahome/fttn99/.

CHAPTER 3

REVIEW OF AGENCY PRACTICES

This chapter provides an overview of evaluation and performance measures practices at the Defense Technical Information Center (DTIC), the Energy Information Administration (EIA), and the Government Printing Office (GPO) current as of July 2000. On March 15 and 16, 2000, the investigators interviewed agency personnel from each of the participating federal agencies in site visits to the agencies. Each of these agencies supplied documents in answer to the investigators' queries. The agencies also reviewed two drafts of the chapter, providing comments the study team incorporated, and the investigators met with all three agencies together on July 19, 2000. This chapter is the result of the meetings and a compilation and analysis of the documents supplied.

3.0 BACKGROUND

The study team completed an initial overview and assessment of the evaluation methods, statistics, and performance measures currently in use by GPO Access, DTIC, and EIA. From each agency, the study team requested the following:

VI. Set of documents by which the agency evaluates its website material.
VII. What types of statistics and performance measures is the agency currently using for its website?
VIII. What overall evaluation methodologies are currently in place and how are they conducted/operated?
IX. Can we determine the types of reports generated by the agency evaluation efforts and the success or quality of these reports?
X. To what degree are information policy instruments/guidelines (as per the compilation in I) being considered in the documents and reports?

To the above questions, the investigators added:

VIII. Preliminary review of website
IX. Summary comments

The objectives of the review and assessment were to:

- Identify the basic evaluation methodologies, statistics, and performance measures currently in use at each of the agencies
- Provide a composite view of the three agencies that would allow each to compare its practices and techniques with others
- Consider which activities might constitute "best practices" for federal website performance measures
- Establish a first step toward developing statistics and measures for federal website performance measures.

The review and assessment described in this chapter are based *primarily* on the materials that were provided the study team. Additionally, agency staff from each of the participating agencies reviewed and commented on two earlier drafts of this chapter.

3.1. DEFENSE TECHNICAL INFORMATION CENTER

DTIC not only publishes its own corporate site but is also responsible for developing and implementing approximately 100 websites for external clients throughout the DoD. The performance measures discussed in this study report apply **only** to the DTIC corporate site (http://www.dtic.mil).

3.1.1. Submitted Document Inventory as of May 6, 2000

1. Weekly Server Usage Report
2. Usage statistics on bandwidth utilization
3. Email forwarded from Marcie Stone, DTIC, forwarded from Terry Hendrix. Email Attachments:
   a) Online service totals
   b) "Metrics and Evaluation Proposal" identifying GPRA instrument and schedule for planning evaluation of agency's effectiveness in disseminating information
   c) online services summary
   d) CENDI Agency Survey Questions for 29 February 2000
   e) Survey for assessing DTIC's STINET (Science and Technology Information Network) service
   f) Chart of queries by month (or year) by type
   g) Bibliography of websites to use for refining "metrics," website evaluation.
4. Diskette containing preceding attachments

3.1.2. What specific types of statistics and performance measures is the agency currently using for its website?

1. Access Watch - <http://www.dtic.mil/usage/20000312/DTICALL_index.html>
   a) Number of hosts
   b) Percent within DTIC and percent outside DTIC
   c) Variety of file types requested (html, gif, jpg, etc)
   d) Number of errors
   e) Number of megabytes of information passed to users
   f) Average number of html pages/hour
   g) Average number of html pages/day
   h) Total number of html pages requested
   i) Number and percent of html pages requested from within DTIC vs. number and percent from outside
   j) Total number of all files requested
   k) Frequency of particular page requests
   l) Number of times website accessed by users from particular domains, hosts, and using particular browsers

2. Multi Router Traffic Grapher (MRTG) "DTIC 7206 CISCO routers Usage Data"
    a) Fractional DS3 to GTE (15MBit)
    b) T1 to Uunet
    c) GW2 10MBit Ft. Belvoir ITN/NiprNet via DASC
    d) GW1 10MBit Ft. Belvoir ITN/NiprNet via INSCOM
    e) T1 to Pentagon
    f) DTIC 100 MBit LAN on GW
    g) DTIC 100 MBit LAN on GW2
    h) GW1 BBN Router Summation
    i) GW2 UUNet Router Summation
    j) 1st Single Line T1 to BBN - turned off Feb99
    k) 2nd Single Line T1 to BBN - turned off Feb99
    l) Fractional DS3 to BBN 15MBit (serial 4/0)
        - Daily graph - 5 minute average
        - Weekly graph - 30 minute average
        - Monthly graph - 2 hour average
        - Yearly graph - 1 day average
    m) T1 to UUNet (serial 2/0)
        - Daily graph - 5 minute average
        - Weekly graph - 30 minute average
        - Monthly graph - 2 hour average
        - Yearly graph - 1 day average
3. Uncertain source
    a) "onlinetotjanwebdata.txt," a file comparing usage between DTIC's online services (FTP/Listserv/WWW/fulcrum) and between internal and external users (possibly a report generated through Access Watch)
    b) "onlinesumjanwebdata.txt," a file summarizing who (which hosts?) used DTIC services and how many megabytes of information they accessed (that month?) (possibly a report generated through Access Watch)

3.1.3. What overall evaluation methodologies (usability, log analysis, customer surveys, etc.) are in place and how are they conducted?

1. Log analysis ("Access Watch" software, modified for the agency, which records usage statistics)
2. Bandwidth usage ("Multi Router Traffic Grapher")
3. Customer survey being conducted currently on Secure STINET
4. "Keynote" software package, which tracks DTIC's average response time and compares it to 40 well-known websites in metropolitan areas

3.1.4. Can we determine the types of reports that are generated by the evaluation efforts and the "success" or quality of these reports?

1. Customer survey results are still being compiled. Preliminary results showed overall user satisfaction.
2. Weekly reports are generated by software display usage statistics, and bandwidth utilization.

3.1.5. To what degree are information policy instruments and guidelines being considered in these documents and reports?

1. "Metrics and Evaluation Proposal," refers to requests relating to the Government Performance and Results Act (GPRA).
2. The same proposal refers to "CENDI" agencies, which may wield some influence within the participating agencies.
3. The privacy and security statement on DTIC's website refers to the NARA General Records Schedule 20, alluding to EFOIA and Privacy Act.

3.1.6. Preliminary Website Evaluation based on McClure 2000 criteria.

- Although some DTIC holdings are available to the public, DTIC primarily serves federal agency employees, government contractors, potential government contractors, and participants in certain federal programs. Information unavailable to the public (i.e., available only to those registered for DTIC services) is available from NTIS (National Technical Information Service). DTIC provides the information necessary to obtain such information to people ineligible to register for DTIC services. This limitation is not immediately obvious upon reaching the site but is available one layer below under "About DTIC." DTIC could make this plainer so that members of the public who are ineligible for registration could find the information more quickly.

- The language on the introductory page is very technical, and possibly confusing for the general public. Alternatively, DTIC might explain the site contents in simpler language so that the general public may more quickly decide whether to use the site as a resource.

- Fifteen buttons point to important areas of the site, but DTIC might consider either an organizing structure or decreasing the number of buttons.

- A privacy and security statement appears on the introductory page

- General statistics are collected and the agency states it destroys the records it collects in accord with the NARA General Records Schedule 20.

- The text spans much of the screen and is not separated into smaller units, making it difficult to scan for relevant information.

- The tone is consistently professional and objective.

- Most pages have not been updated within the last three months

- All pages include a link to a contact person.

- The site lacks an overarching structure to place the contents in logical relation. The site includes a lot of information, some of which is redundant.

- The “Find It” function defaults into an alphabetical listing, frequently by acronym. A user unfamiliar with the acronyms and other agency nomenclature might have a difficult time finding a desired topic and, although the list links to another glossary of acronyms, the process is awkward.

- Each page contains a heading. As noted before, however, the subject headings are confusing. They do not suggest a controlled, logical hierarchy. The relationships between the content areas are vague - it is unclear from the structure whether one contains part of another or is preliminary to another.

- From the materials it appears that statistics on website use are available; however, the statistics and website evaluation pages are difficult to find.

3.1.7. Summary Comments

The DTIC website acts as a portal for the public to other sites designed for fuller public use. Further, it provides fuller service to users who are technologically sophisticated and familiar with the agency’s structure, context, and background.

In the past, DTIC has relied on technical self-evaluation sources such as log file analysis, bandwidth usage and tracked web site response time. But recent efforts have also included user based evaluation techniques such as the Secure STINET customer satisfaction survey. DTIC is also involved in a larger CENDI Agency working group effort to incorporate greater use of web evaluation tools.

Future DTIC evaluation efforts might include some of the following:

- Continued and expanded use of user focused evaluation methods such as focus group testing, usability testing, and collection and analysis of user comments. User based evaluation techniques could be used to develop a more user-centric organizing framework for DTIC site.

- Design guidelines to control the use of technical language and acronyms without accompanying explanations

- Clearer and easier-to-find information about the restrictions faced by the general public on the site, and possible alternative information sources. Currently this information is available, but DTIC may consider making it more obvious to the user.

3.2. ENERGY INFORMATION ADMINISTRATION

3.2.1. Submitted Document Inventory as of May 6, 2000

1. EIA help desk notes, customer comments, raw data
    a) Nov99.htm
    b) Dec99.htm
    c) Jan00.htm
    d) Feb00.htm
    e) Feedback.wpd
2. Materials related to cognitive analysis of the EIA website
    a) Interview protocol and questions for cognitive analysis
    b) Paper providing background and details of evaluation project, methodology used in evaluation.
    c) Specific problems identified during Web evaluation, covers five groups of websites. Bulleted list focuses on problems experienced.
    d) Usability study conducted in the Bureau of Labor Statistics Lab. Analysis of Results from EIA Web evaluation: Second Pre-test. Includes demographics of test subjects, data, results and analysis.
    e) Power point Presentation of Web Cognitive and Usability Evaluation Status Report. Outlines goals and objectives of the site. Presents results, conclusions and findings.
3. EIA Webtrends snapshot from March 20, 2000, user statistics, raw
4. Telephone surveys
    a) 1998 Survey of telephone customers and printed publication subscribers
    b) 2000 Survey of telephone customer satisfaction
5. Web products profile; number of visits and time of stay in minutes
6. Sample of Altavista queries to the EIA site, from March 20 2000, raw data
7. Sample of Google queries to the EIA site, raw data
8. Information on Channeling
    a) Spreadsheet of web user session data and web file downloads.
    b) Information channels handout: used for strategic planning purposes.
    c) IPSC (Information Products and Services Committee) Report to Senior Management – EIA Strategic Plan; provides implementation plan for channels concept
9. Quarterly Report on EIA Performance Measures: deals with citations and data integrity and quality issues. Lists results of performance measures that are described in document 10, Draft ICSP (Interagency Council on Statistical Policy) Statistical Agency Performance (See Performance Measures Section II, IV-9, VIII-1)
10. Draft ICSP Statistical Agency Performance: Draft covers 12 agencies and EIA cover sheet provides good reference point.

3.2.2. What specific types of statistics and performance measures is EIA currently using for its website?

1. *Complete Report: Log Analysis Statistics from WebTrends Software Package*

General statistics:

a) No. of Hits per Home page
b) No. of User Sessions
c) No. of Hits per day
d) Average session length
e) Most requested pages-most popular website pages and how often they were accessed
f) Top entry/exit pages-first/last page viewed when entering/leaving site
g) Most downloaded files-most popular file downloads of website
h) Activity level by day of week
i) Most downloaded file types-identifies the downloaded file types and total kilobytes downloaded for each file type
j) Most accessed directories-analyzes accesses to the directories to the site
k) Top referring sites-identifies the domain names or number of IP addresses w/links to site
l) Top search engines-which search engine referred visitors to site the most often
m) Top search keywords-identifies, for each keyword, which search engines led visitors to site
n) Most used browsers-identifies the most popular WWW browsers used by visitors to site
o) Netscape browsers-breakdown of the various versions of Netscape browsers that visitors use
p) Microsoft Explorer browsers-breakdown of the various versions of Explorer browsers visitors use
q) Visiting spiders-identifies all robots, spiders, crawlers and search services visiting site
r) Most used platforms -identifies operating systems most used by visitors to site
s) Single access pages-pages that visitors access and exit without viewing any other page
t) Most active organizations-companies or organizations that access website the most often
u) Summary of activity by day-outlines general server activity, comparing level of activity on weekdays and weekends
v) Activity level by day of week-shows the activity for each day of the week by report period
w) Activity level by hour of day-shows the most/least active hour of the day for the report period
x) Technical statistics and analysis-total number of hits for the site, how many successful/failed, and calculates the percentage of hits that failed
y) Client errors-type of errors returned by the client accessing the server
z) Server errors-identifies by type the errors which occurred on the server
aa) Top referring URLs-provides the full URLs of the sites with links to website

2. Complete Report: Log Analysis

Performance Measures from Quarterly Report (See Section IV)

- a) Media Citations
- b) Web use
- c) Briefings to Congress and policymakers
- d) Data accuracy
- e) Surveys of subscribers
- f) Telephone Customer Satisfaction Survey

3.2.3. What overall evaluation methodologies are in place and how are they conducted/operated?

1. Web Cognitive and Usability Evaluation
    - a) Think Aloud Interviews
    - b) Customer feedback
    - c) Demographic Questionnaire
    - d) Timed exercises
    - e) Senior Staff Tested
2. Customer Comments/Surveys
    - a) Telephone customer satisfaction survey
        - Frequency of contact
        - Questions asked via telephone
        - Satisfaction w/customer service and information quality
        - Product users who used EIA Electronic Products or Services during the Past Year
        - Preferences between paper vs. electronic copy of information
        - Reasons for Calling National Energy Information Center (NEIC)
        - Comments from Customers
            - o Timeliness
            - o Data access on the website
            - o Improving website
    - b) Feedback observations for February 2000
3. Emailed Customer Comments (Nov 1999 – Feb 2000)
    - a) Website Feedback
        - November 1999 – Received 4 comments/contents included
        - December 1999 – Received 1 comment/contents included
        - January 2000 – Received 2 comments/content
        - February 2000 – Received 2 comments/content
        - Webmaster mail – comments received by webmaster
            - November 1999 – Received 21 comments/content
            - December 1999 – Received 13 comments/content
            - January 2000 – Received 22 comments/content
            - February 2000 – Received 24 comments/content

b) Comments prepared by NEIC staff – Staff prepare summary reports based on customer input. The summary reports include some comments verbatim.

- November 1999 – Included 10 comments/content

- December 1999 – Included 8 comments/content
- January 2000 – Included 10 comments/content
- February 2000 – Included 48 comments/content

3.2.4. Can we determine the types of reports that are generated by the evaluation efforts and the "success or quality" of these reports?

1. Blessing, Colleen; Bradsher-Fredrick, Howard et.al. Cognitive Interviewing: Applications to Evaluating the Energy Information Administration's Web Site.
2. Finn, Pauline. Analysis of Results from EIA Web Evaluation: Second Pre-Test. Usability testing results based on small scale, informal studies.
3. Blessing, Colleen, et.al. Web Cognitive and Usability Evaluation Status Report. Power Point presentation of report No.4
4. 1998 Survey of Subscribers.
    - 56 percent of respondents prefer paper publication to Web version, 38 percent prefer Web version
    - Reasons Web version preferred: search capabilities; timely information; easier to transfer data to others; don't need bookshelves for storage; cheaper than subscribing.
    - Reasons Print version preferred: don't like reading large documents on the PC; use paper publications when away from the PC; like having paper archives; takes too long to download; difficult to download; difficult to navigate; Internet access unreliable.
5. 2000 EIA/NEIC Telephone Customer Satisfaction Survey: Findings concerning electronic accessibility of information.
6. IPSC Report to Senior Management – EIA Strategic Plan
    - Implementation of channel plan.
8. Performance Measures Quarterly Report
    - Measures address citations, congressional briefings and data quality.

3.2.5. To what degree are information policy instruments and guidelines (as per the compilation) considered in the documents and reports submitted by EIA?

April 27, 2000, Draft Definitions Of Measures, A Supplement To Performance Measures. On page 2, Paperwork Reduction Act of 1995 directs agencies to achieve reductions in respondent burden of 5 percent per year.

3.2.6.Preliminary Website Evaluation based on McClure 2000 criteria

1. Performance measures determining the successful use of the search feature on the website.
    - Site uses commercial search engine – Google.com
    - Searches lead to other pages on site; however, a button pointing to the EIA home page (i.e. "return to EIA home page") could be

included on those pages to insure the user easy navigation back to the home page
- The "back" button is available but after numerous search strings, it may be difficult to use "back" button to get back to home page

2. Does the website have evaluation information and if so what type and how much?
   - There is no evaluation online available to the general public.
3. There is contact information for customer feedback:
   a An email address, street address, and phone number is made available to people who may have questions about the content of the website. infoctr@eia.doe.gov
   b An email address and phone number for the webmaster is made available to people who have technical site problems. wmaster@eia.doe.gov
   c A feedback button on homepage for sending messages
   d Contact list of personnel at EIA
   e Home page has link to privacy policy
   f Primary and Secondary pages have consistent format and design. Pages deeper in the structure do not make it clear that pages are official parts of EIA website or if user has left the site.
   g Some of the deeper pages take too long to download
   h Each page lists a modification date.
   i Site contains no pricing information, as EIA does not sell anything.
   j FAQ section

4. Privacy Statement
   a Contains references to FOIA
   b Explains security practices in place to protect the integrity of the site, and detection of individuals trying to hack the site
   c Explains the kinds of information collected and how the information is used.

3.2.7. Summary Overview:

The task faced by EIA in putting its information on the Web is an organizational conundrum. The EIA web committee has the unenviable assignment of posting highly diverse technical information from many sources on one website suitable for use by the layperson. To this end, and to their credit, the EIA Web committee has recognized the need for continual evaluation and redesign of the site in reaction to a constantly changing environment. They have conducted studies to aid in the creation of the next version of their home page to be unveiled in the near future. The new design takes a channel approach, strives for less jargon, and is designed with the layperson in mind.

To prepare for this new design, EIA chose to perform cognitive usability testing. The results from this usability testing suggest that EIA's current web site design meets key usability requirements as most users could find the required information. Tests showed no correlations among the following variables:

- The users' level of experience using the Internet and their ability to find the correct answer to a test question on the web site
- The users' familiarity with energy terms and their ability to find the correct answer
- The degree of frequency of EIA website use and ability to find the correct answer.

As part of the redesign, EIA may wish to develop basic website design guidelines applicable to all EIA sites. EIA will doubtless want its design guidelines to avoid stunting office or program creativity or limiting office and program ability to respond to changing customer needs. How the guidelines are applied is a matter for agency determination.

EIA already has performance measures in place, but these performance measures have not been completely modified to include website services and products. For example, EIA has output measures in place for the print environment, but not for the electronic environment. Current website performance measures focus on number of downloads from website and number of user sessions.

To expand its toolbox of performance measures the study team suggests the development of performance measures based on the following:

- Identify the existing business processes on the Web, in order to develop benchmarks for evaluating these processes.
- Documents supplied to the study team suggest that EIA could develop performance measures for user satisfaction. Possible methodologies include an online survey similar to GPO's, or a survey to electronic newsletter participants.
- Testing by the study team also suggests the need for performance measures related to bandwidth and page load times as some pages were slow to load at both peak and non peak usage times.
- Further analysis of customer comments. EIA summarizes and distributes all customer comments. Further analysis might include classifying comments as positive or negative with the goal to reduce negative comments, or keeping track of the number of comments that led to web site changes with the goal of increasing customer suggested changes.
- Number of customer queries receiving responses within a given time period. The support team receives about 30,000 customer contacts each year, including telephone, web, mail, and walk-in. The team tries to respond to email contacts within 24 hours and answer telephone inquiries immediately. EIA does not currently keep data about whether all queries receive responses.

EXISTING REFERENCE MATERIALS LISTED BUT NOT IN STUDY TEAM'S POSSESSION

1. Bradsher-Fredrick, Howard, and Rutchik, Robert. Maximizing Feedback to Increase Customer Use of the Energy Information Administration World Wide Web Site. (Cited in EIA documents but not provided to study team)

2. Bradsher-Fredrick, Howard, and Rutchik, Robert. Customer Use of the Energy Information Electronic Products During 1996 (With hints of what to expect in 1997). (Cited in EIA documents but not provided to study team)

Agency did preliminary focus group testing, but provided study team no results from actual tests.

3.3. GOVERNMENT PRINTING OFFICE

3.3.1. Submitted Document Inventory as of April 8, 2000

1. GPO Access Web Committee hierarchy
2. Video Tape of GPO Access Focus Group
3. Training Course and Trade Show Evaluations and Evaluation Form
4. Sampling of Bandwidth Utilization Reports for 9.12 - 9.19, 12.26 - 1.02, 1.16 - 1.23, 1.23 - 1.30
5. Sample of user comments emailed to web committee
6. Draft website guidelines for GPO Access
7. Managing the FDLP Electronic Collection: A Policy Planning Document
8. Performance Measures: Talking Points
9. Update Report: The Indexing of GPO Access Web Pages
10. GPO Access Usage: Executive Summary: List of data showing number of searches for databases and the number of retrievals for those searches: 1/2000, 2/2000
11. Web Trends: GPO Access usage, prepared by EIDS: 1/2000, 2/2000
12. Biennial Report to Congress on the Status of GPO Access 12/31/99
13. GPO Access User Survey Findings of April 18, 2000
14. GPO Access Open Forum Report, Spring Depository Library Council Meeting Newport, RI, Tuesday April 11, 2000
15. GPO Summary of Search Engines Presentation, Spring Depository Library Council Meeting Newport, RI, Tuesday April 12, 2000
16. GPO Access Open Forum Feedback, Federal Depository Library Spring Conference, Wednesday April 14, 1999

3.3.2. What types of statistics and performance measures is GPO currently using for its website?

1. ***Document Retrieval Statistics:*** In order to measure the units of content retrieved by users from GPO Access, GPO decided to use documents retrieval. This allows the agency to measure both the units of actual content, or documents retrieved, as static html pages and those extracted from databases made available on GPO Access. Since this eliminates the non-content retrievals for items such as graphics on a web page, GPO believes it is far more meaningful than the ubiquitous hit counts employed by many websites.
2. ***Sampling bandwidth utilization***: GPO keeps descriptors of server bandwidth utilization.

3. ***Electronic User Comments***: Electronic messages originate from the website either through the website's "Questions or Comments: gpoaccess@gpo.gov" link. Further, GPO uses an Automatic Call Distribution (ACD) System and Software, which provides real-time and historical data for statistical measuring of performance of GPO Access User Support Team's telephone customer service performance.
    - Electronic messages from comments indicate the page the request originated from, the client's browser; client's name, client's phone number; and the content of the comment.
    - Electronic help or support comments only include name, email address, date, and message.

   Note, too, that GPO responds to all email and fax inquiries within 24 hours, either with an answer (when possible), or with an acknowledgement of message receipt and follow-up answer. GPO also plans to measures to track user comments and to analyze their impact on changes made to the site.
4. ***Internet search engine retrieval statistics***: GPO Access Usage - Executive Summary: GPO staff believe that the ease with which users access the website is important, and the ability to find the website using commercial search engines is an important factor in accessibility. Therefore, GPO has done studies using commercial search engines to see if GPO Access pages are covered by commercial search engines, and what terms provide the best results for retrieval of GPO Access pages through these search engines.
5. ***Biennial Report:***
    a) Online Tangible Titles Available through GPO Fiscal Year 1999
    b) Cumulative Online Titles Available through GPO Access: April 1998-November 1999
    c) GPO Access user support team requests: March 1997 - October 1999
    d) Expenditures and Operating Costs, Savings and Revenues, p.24.
6. ***Statistics generated by the Software Package Webtrends***
    a) Server Errors: internal server errors/server.
    b) Page not found Errors: resident server 404 errors
    c) Client Errors: error codes from servers accessing site
    d) Dynamic Pages and Forms Errors
    e) Technical Statistics and Analysis
        - Total hits
        - Successful hits
        - Failed hits
        - Failed hits as percent
        - Cached hits
        - Cached hits as percent

    f) Activity level by hour of the day: bandwidth usage by hour of the day
    g) Activity level by day of the week: bandwidth usage by day of the week
    h) Summary of activity by time increment: bandwidth usage across all servers by date.
    i) Summary of activity by report period: allows comparison between weekday and weekend activity.

j) Hits, and user sessions per organization tag; net, org, mil, com, edu, gov, arpnet, international
k) Most active organizations: AOL, UUNET, att.net
l) Most active countries: identifies countries from which visitors originate and which server they enter through.
m) Top users: Identifies the domain names from which most requests come from.
n) Most popular dynamic pages and forms.
o) Most downloaded file types: Most frequently downloaded type of file. Ex gif, html, htm, shtml, pdf, jpg, txt, etc.
p) Most downloaded files: identifies most popular file downloads, does not count if transfer was not completed and does not include files downloaded from a database search. See Section II, number 1 for information on GPO document download counts.
q) Top paths through sites: Identifies entry page and next six pages visited.
r) Single access pages: identifies the pages from which a user enters and exits from without going to other pages in the site.
s) Top exit pages: the pages from which users exited the site.
t) Top entry requests: Identifies first page linked to from within the site.
u) Top entry pages: First page viewed when a user visits the site. Homepage and links that connect with site.
v) Least requested pages: Least popular pages on website. If committee thinks these pages are important, they need to increase their visibility.
w) Most requested pages: most popular websites based on access frequencies. Also includes average time a user spends viewing the page.
x) Server cluster load balance: compares the performance of the individual web servers (five servers) in a cluster based on kilobytes transferred (bandwidth load balance)
y) General Statistics
    - Number of successful hits for entire site
    - Number of page views
    - Number of user sessions
    - User sessions from U.S.
    - International user sessions
    - User sessions of unknown origin
    - Average number of hits per day
    - Average number of page views per day
    - Average number of user sessions per day
    - Average user session length
    - Number of unique users
    - Number of users who visited once
    - Number of users who visited more than once

Note that GPO does not use all of the measures produced by WebTrends reports. Instead GPO focuses mainly on (1) activity level by hour of the day, (2) most requested pages, and (3) server cluster load balance. GPO places greater emphasis on document download statistics. They are more accurate measures of web site usage given the prominence of the document databases on GPO Access.

3.3.3. What overall evaluation methodologies are in place and how are they conducted/operated?

1. ***Focus Groups***. GPO uses focus groups to gather the opinions of specific communities about specific aspects of the GPO site. Following is a brief outline of a group session assembled specifically for feedback from the Federal Depository Library community, and therefore not necessarily representative of all focus groups conducted by the GPO:
   Participants: uncompensated librarians
   Topics covered included, but were not limited to:
      Initial impressions, what specifically do people like?
         Ease of use
         Navigation tools
2. GPO monitors ***user feedback*** through
   - Telephone 4,350 per month (Biennial Report 1999 p.20)
   - Email 2,150 per month (Biennial Report 1999 p.20)
   - Faxes
   - Letters

3. ***Online user surveys***: GPO has conducted three user surveys, the latest of October 1999. Each survey iteration has changed slightly as changes occurred to the system. To better keep pace with these changes, GPO intends to conduct annual surveys from this point on. The most recent online survey focused on the following:
   - Key characteristics of GPO Access users: affiliation with libraries, schools, private industry, government etc.
   - How users find GPO Access: internet search, following links
   - Frequency of site usage: yearly, weekly etc.
   - Reasons for using GPO Access: tracking legislation, legal research, patron assistance, business decisions, homework, news, academic research etc.
   - Finding aids employed: MOCAT, Federal Agency Internet Sites, Government Internet Sites by Topic etc.
   - Ease of use of the site
   - Content timeliness
   - Technical specifications of the computers and internet connections used to access GPO Access: platform, monitor size, connection speed
   - The survey also asked users to rate GPO user support teams in terms of: accessibility, courtesy, product knowledge, technical knowledge, complaint resolution and response time
4. ***Open public forums:***
   - Open attendance (e.g. Search Engines Presentation and GPO Access Open Forum at the Spring Depository Library Council Meeting)

    - Forums on several topic areas were held during this meeting.
- Open, unguided discussion of GPO Access
- Forum announced in the Federal Register and on the GPO Access Web site in advance of each session.

3.3.4. Can we determine the types of reports that are generated by the evaluation efforts and the "success or quality" of these reports?

1. ***Document Retrieval reports "GPO Access Usage report."*** As described in Section II, number 1, GPO uses documents retrievals, as its primary measure of web site usage. The reports show the number of documents, or units or content, that users downloaded from GPO Access.
2. ***GPO Access Online User Survey reports***. As described in the above section, GPO has conducted three on-line user surveys, each resulting in a User Survey Findings Report.
3. ***Update Report: The Indexing of GPO Access Web Pages*** This GPO report analyzes the ability to retrieve GPO Access Web pages through Internet search engines.
4. ***Biennial Report to Congress on the Status of GPO Access*** This is the fourth of a series of reports produced every odd year. Most recent -12/31/99
5. ***Performance Measures Talking Points***. Provides a list of GPO Access evaluation goals which GPO is currently working toward achieving
6. ***Log Analysis Report*** uses Webtrends Software package.

3.3.5. To what degree are information policy instruments and guidelines (as per the compilation) considered in the documents and reports submitted by GPO?

1. ***Draft of website design guidelines for GPO Access***,
    a) "Guidelines do not apply directly to the World Wide Web Consortium (W3C) Americans with Disabilities Act guidelines
    b) "In accordance with Public Law 103-40, The Government Printing Office Electronic Information Enhancement Act of 1993, GPO Access was established as a means of enhancing public access to federal electronic information. To achieve this objective, GPO has attempted to ensure equitable access to public, including those persons with disabilities in accordance with standards established by the Americans With Disabilities Act (ADA) of 1990." p.2
    c) Whenever a significant change is made to the site, take and save a "snap-shot" of GPO Access.
    d) Mentions archive, permanent information, NARA. Does not mention instruments per se, but implies NARA and EFOIA. P.4
2. ***Biennial Report***
    a) Public Law 103-40, the U.S. Government Printing Office Electronic Information Enhancement Act of 1993, which charged the Superintendent

of Documents within the Government Printing Office to develop mechanisms to enhance public access to a wide range of Federal electronic information products. p.1

b) The Senate Report [103-27] incorporated the Federal Bulletin Board into GPO Access p.5.
c) Title 44 of the U.S. Code (44 USC 1911) stipulates that public access to official government information products disseminated through the FDLP must be maintained permanently in regional depository libraries and depository libraries not served by a regional depository library. Since online products are not physically distributed to depository libraries for retention, GPO has assumed responsibility for the provision of permanent access to government information products residing on GPO Accessp.8.
d) Refers to meeting the privacy needs of users, but was instituted before requirement by legislative action. p.15.
e) The Privacy and Security Notice on GPO Access was posted prior to legislative actions that would require all Federal Web sites to provide such notices.
f) Following standards set forth in OMB bulletin 95-01 and the National Archives and Records Administration (NARA), in January 1996 GPO implemented its Government Information Locator Service (GILS) online.

3. *Managing the FDLP Electronic Collection: A Policy and Planning Document*

In several instances this document cites existing laws regarding the scope of GPO and the Depository Library program as well as collection development and ADA.

a) Criteria for inclusion of the material into the collection are determined by 44 U.S.C. §1901-1902 (p. 10, 13)"
b) "GPO will provide a text-only interface for government information products made available through GPO servers whenever technologically feasible and cost-effective. This will not only allow GPO to maintain compliance with the Americans with Disabilities Act (ADA) but also will ensure access to users with limited technological and communications capability." (p.13)
c) "…For such electronic products, GPO has assumed the role traditionally taken by regional depository libraries as provided in 44 U.S.C. §1911." (p.9)
d) "except those determined by their issuing components to be required for official use only or for strictly administrative or operational purposes which have no public interest or educational value and publications classified for reasons of national security." (44 U.S.C. §1902) (p.9)
e) " Based on the mandate of 44 U.S.C. chapters 19 and 41, GPO's responsibility for providing permanent public access is extended to electronic government information products that meet the statutory definition for government publications." (p.7)

f) "Senate report 103-27 incorporated the *Federal Bulletin Board* into GPO access as well."(p.6)
g) "FDLP is codified by 44 U.S.C. Chapter 19. Additional detail concerning the Cataloging and Indexing is codified at 44 U.S.C. §1710-1711." (p.5)
h) "*The Government Printing Office Electronic Information Access Enhancement Act of 1993* (Public Law 103-40) charged the Superintendent of Documents…." (p.5)

3. ***Electronic Transition Plan.***

GPO considers Permanent Public Access to be an important performance measure for Federal Agency Websites. While GPO Access offers the immediacy that the public demands from the Internet, it differs from most online services in that it also maintains historical archives of information previously available on its servers. Permanent public access to a collection of electronic government information products is thus ensured by the system's storage facilities, allowing the same historical research that is possible through printed media.

3.3.6. Preliminary Review of website

- Official pages in the first two layers of the site carry the GPO Access seal. Third level pages carry the words "GPO Access" from the seal. Currently the only section that does not have the seal is the children's area.
- When leaving the official GPO site, the user is notified
- Few images on site, pages download relatively quickly
- Text only version available
- Format consistent from page to page
- Children's area clearly marked, downloads a little slower due to more graphics
- Has a "What's New" section
- Privacy policy link posted on each page
- Navigation tools provided, quick links, site map
- Last update date provided
- No user statistics posted on the site
- No access fees
- Several ways to reach support services
    a) Link at top of page called comments: this provides form to fill in
    b) Help link at top of page, takes user to page with contact information; phone, fax, email - gpoaccess@gpo.gov
    c) gpoaccess@gpo.gov also at bottom of each page
- Provides information about this site link

3.3.7. Summary Comments

Initially, GPO established the GPO Access website to fulfill the mandate required by PL 103-40. Under the provisions of this law it has subsequently evolved to provide public access to many key government documents. "As of November 1999, the website provided access to more than 104,000 titles on Government Printing Office servers and over 62,000 additional titles through links to other federal agency websites." (Biennial Report 1999 p. 1). GPO considers Permanent Public Access to be an important performance measure for federal agency websites. GPO Access maintains historical archives of information previously available on its servers, ensuring permanent public access to its collection of electronic government information products, and facilitating the same historical research that is possible through printed media.

GPO Access is geared toward meeting the changing needs of the general user community. As a content oriented web site, GPO Access primarily measures the number of documents retrieved by users as a selection of the units of content being distributed by the site. Standard page hit statistics do not capture information about the number of files downloaded through a search of the GPO Access databases, which serve as the main focus on GPO Access and users' main source of information. Document retrieval statistics more accurately show how many of those documents users accessed and to what extent users are making use of the resources on GPO Access. In addition to its use of document retrieval statistics, staff constantly evaluate other aspects of the website through focus groups, online user surveys, user comments, log analysis, trade shows and conferences. Further, GPO conducts user-training sessions.

GPO has ensured that the information on its website is listed in commercial search engines by analyzing search results from commercial search engines, and conducting search and retrieval studies using commercial search engines. GPO has contacted the commercial search engines to eliminate problems with missing pages, and changed their hardware configuration to allow spiders - indexing tools used by commercial search engines to add sites to their searchable database - to work better. Also, GPO has added keywords and descriptive meta-tags to improve their pages' rankings in retrieval lists for engines that take advantage of these tags.

In addition, GPO has conducted bandwidth usage studies to determine peak user times and peak usage pages. They have also changed their hardware to allow equivalent distribution of bandwidth among their servers.

GPO access has a privacy statement posted on its homepage and on its children's area, *Ben's Guide to Government.* The GPO access website maintains design and format consistency throughout, except for search pages and search result pages.

The GPO website has addressed Universal Accessibility in its *Website Design Guidelines.* These guidelines enable GPO Access to comply with section 508 of the Rehabilitation Act Amendments of 1998 (36 CFR Part 1194). They include providing the information in ASCII text format, using only HTML code, minimizing the use of images, provide text alternatives for graphics, and test all pages using a range of browsers.

Future steps to enhance current evaluation activities and web site design might include the following:

- GPO could enhance evaluation by keeping more exact, categorized figures of user comments and customer service responses. GPO could set benchmarks for adequate response time, and information usefulness to customers. That is, how often are questions answered promptly, adequately and correctly?
- GPO could enhance the value of training surveys by adding questions pertaining to the website to the training questionnaire.

GPO has a well developed management approach for its website and has committed significant effort and thought to evaluating it.

A recent presentation given by T.C. Evans offered the revised strategy for assessing GPO Access (See Appendix B). This strategy could serve as a guideline for other agencies in establishing or amending their website development strategies. GPO's strategy is based on nine areas for performance measurements:

- Legal Mandates: Information Policy Instruments
- Agency Goals and Objectives
- Technological Infrastructure
- Site Content
- Site Design: Consistency
- User Support
- Awareness
- Usage Metrics
- Customer Satisfaction.

The outline referenced in Appendix B is an excellent approach and these nine measurement areas should be considered in developing a website evaluation and measurement strategy. Although all nine areas may not be of equal importance for different agencies in ensuring the citizen access to federal government information, they are an excellent starting point.

3.4. DIVERSITY AND CHALLENGES

The overview provided in this chapter of the evaluation and measurement efforts at DTIC, EIA, and GPO demonstrates the wide range of strategies for measurement. The efforts also suggest that different strategies can be useful in different agency settings. For example, some agencies may be better able to employ regular and automatic log analysis techniques than to implement full-scale usability studies. Others may find that the establishment of formal usability labs to "test" the effectiveness of selected pages and content may be more effective. Ultimately, the "best" strategies may be those that best accommodate agency mission and available resources.

The review of agency practices described here may also be useful for other federal agencies to compare themselves against. As suggested above, it is *not* that one agency is better or worse than another; rather, that these agencies have taken *different* approaches to developing evaluation and measurement techniques. A range of issues and situational factors (see Chapter 5) affect the success with which any agency can engage in an ongoing program of evaluation and measurement.

Each of these three agencies is in the process of developing and evolving their assessment techniques. Within this process each has struggled with a comprehensive planning approach to formally establish responsibilities, tasking, schedules, statistics, and measures to be employed to assess the quality of agency websites and their usefulness to users of that website.

A common comment heard throughout the federal government is the lack of time, resources, and personnel to engage in ongoing assessment of websites. While this certainly has been true based on the investigator's experience, agencies will still need to develop "quick and clean" assessment techniques – utilizing not only the techniques and measures identified in this chapter but also those proposed in the next.

CHAPTER 4

PROPOSED PERFORMANCE MEASURES

4.0 INTRODUCTION

This chapter describes and elaborates on the findings from the assessment of the materials collected and reported in Chapter 3 from the three sponsoring agencies concerning the types of statistics and performance measures the agencies were using. Appendix A, Criteria for the Evaluation of Federal Websites, and Appendix B, Website Performance Measurement and Evaluation for GPO Access, supplement the information in this chapter about performance measures.

In interviews and meetings with agency representatives involved in this study, the investigators received a wealth of information and suggestions. These materials pertain to how the agencies are currently measuring their websites' performance as well as management steps the agencies are taking – or plan to take – to better manage their sites. In addition, the policy analysis report in Chapter 2 provides a basis for specific recommendations about policy based assessment that federal agency staff should consider when assessing their websites.

The chapter presents a way of organizing and understanding website performance measures. As the investigators sifted through the data collected from the agencies and from their own analyses, they realized that the term "performance measure" can be understood in several ways. Many things lumped under the general heading of performance measures might be considered conditions prerequisite to performance measures. In other cases, the materials pertained to management or operational considerations rather than measurement of the website's performance. Performance measures necessarily imply performance goals and the measures yield indicators of progress toward achieving the goals. Websites can be the subject of many measures and management activities that are not goal achievement indicators. This point should become clearer from the exposition below.

4.1 LEGAL AND POLICY CONDITIONS AFFECTING AGENCY WEBSITES

Table 4.1 presents a set of questions or possible measures based on Chapter 2 that the investigators consider as prerequisites for performance measures. These are questions that all federal webmasters should ask of their websites, irrespective of the specific mission served by the agency. That is, they apply to all websites simply because they are federal websites and not specifically because they are the site of Agency X or Agency Y.

In effect, the list in Table 4.1 constitutes a set of performance measures of the "Yes-No" variety. The "Yes-No" questions are only a beginning point for an agency in considering legal and regulatory conditions. They represent a level of minimal compliance, but do *not* necessarily represent "best practice." For best practices, agencies need to ask themselves about the quality of their response to the conditions. For example, by now every federal agency is likely to have some sort of privacy policy notice on its websites. Not every agency, however, has a privacy policy notice that complies with the OMB guidance and conformss with the model language OMB provided. Again, most federal websites have at least token compliance with the statutory requirement and OMB guidance for the Government Information Locator Service. Relatively few have thoroughly integrated GILS into the overall design of their websites. Hence, Table 4.1 should only be thought of as a starting point for performance measures to satisfy legal and regulatory conditions.

Table 4.1. Checklist of Legal and Policy Conditions Pertaining to Federal Agency Websites

Statute/Policy	Checklist Question
1. Privacy	A. Does the website contain a privacy notice that complies with the OMB guidance and model language for federal websites?
	B. Does the website avoid the use of "cookies" or observe OMB-stipulated restrictions?
	C. Does the website comply with the Children's Online Privacy Protection Act, particularly with regard to collecting personal information from children? (Same as 9-B below)
2. Freedom of Information Act	A. Conventional FOIA: Does the website contain clear procedures for requesting agency records under FOIA?
	B. Electronic FOIA: Does the website contain an Electronic FOIA Reading Room?
3. Copyright	A. Does the website management include provisions to ensure that copyrighted materials are not posted without permission from copyright holders?
	B. Reuse Restrictions: Can the site content be freely reused without restriction?
4. Accessibility	Does the website make provision for accessibility for persons with disabilities in accordance with §508 of Rehabilitation Act?
5. Security	Does the website management include adequate provisions for protecting the security of the website and other agency information systems?
6. Paperwork Reduction Act	A. Do information collections undertaken via the website have appropriate OMB clearances?
	B. Does the website comply with provisions for the Government Information Locator Service?
7. Depository Library Program	Have publications posted to the website been made available to the Federal Depository Library Program?
8. Government Paperwork Elimination Act	A. Does the website permit and encourage electronic information collection?
	B. Does the website permit use of digital signatures?
9. Federal Records Act	Does the website management include adequate provision for identifying website records and transferring records to agency record keeping systems?
10. Access for Children	A. Does the website comply with the President's April 1997 guidance on expanding Internet access for children, parents, and teachers?
	B. Does the website comply with the Children's Online Privacy Protection Act, particularly with regard to collecting personal information from children? (Same as 1-C above)

4.2 MANAGEMENT AND INFRASTRUCTURE FACTORS

Table 4.2 lists some management and operational factors that affect websites. As with legal and regulatory conditions, the list can be considered as performance measures or as prerequisites to performance measures. And as with the preceding section, Table 4.2 lists factors in a more or less "Yes-No" fashion that represents a minimal level of adequacy. The list is once again a starting point for agencies to ask themselves how their websites stack up on the factor criteria, and then to go beyond the starting point. Going beyond entails asking questions about the quality of agency practices and procedures.

Table 4.2. Management and Infrastructure Factors Pertaining to Federal Agency Websites

Type of Factor	Factor
1. Infrastructure	A. Does the website have sufficient technology infrastructure (bandwidth, server controller array, etc.) to ensure adequate response time?
	B. Does the website have the appropriate software to achieve its purposes?
	C. Does the website have the appropriate level of availability (e.g., 24 hours, 7 days a week)?
	D. Does the website have adequate steps for emergency preparedness and disaster recovery?
	E. Does the website have adequate operating resources (funding and personnel) to achieve its purposes?
	F. Are server errors and 404 errors (pages not found errors) at an acceptably minimum level?
2. Management	A. Does the website comport with industry best practices, such as the World Wide Web Federal Consortium's Home Page Guidelines, as regards content design, navigation, organization, style, and markup.
	B. Access control: Does the agency exert management control over who may post to the website?
	C. Quality control: Does the agency exert management control over the quality, design, and style of website postings?
	D. Awareness and Visibility: Has the agency ensured the site is easily reachable by registering with search engines and portals and periodically searching for its sites on these engines?
	E. User Support: Has the agency provided an adequate user support staff for technical and content queries?
	F. Security: Is the agency providing adequate security to prevent intrusion into the website?
	G. Evaluation: Does the agency regularly evaluate the website through log file analysis, focus groups, online user surveys, open public forums, and other appropriate methodologies?
	H. Records Management: Has the agency made adequate provision for records management on the website and integrated the website into the agency records management program?

As an example, Table 4.2 lists records management and suggests taking and saving of website snapshots. It does not ask whether the snapshots are transferred to an approved agency recordkeeping system and indeed whether the agency has made any efforts to seek records scheduling approval from the National Archives and Records Administration for its website records.

The quality control questions asked in Table 4.2 are also just a beginning. The questions pertain to management control, design, and style of the website. They do not pose queries about the quality of content found on the site. The table mentions evaluation methodologies but only scratches the surface of this complex and extensive topic. Agencies may wish to go beyond the query in Table 4.2 and ask how website evaluation, if it exists, dovetails with evaluation of other aspects of evaluating the agency's information dissemination products.

A website is only one dissemination medium among a range of media the agency uses including CD-ROMs, printed products, telephonic information services, fax-on-demand, in-person presentations at conferences and workshops, and so forth. A fully integrated evaluation system would consider all media as an integrated set so that various products and services, offered in several media, supplement and complement one another. The foregoing examples serve as hints of the depth and complexity of institutional self-questioning that the Government Performance and Results Act envisioned and that website performance measures entail.

4.3 PERFORMANCE MEASURES

4.3.1. Performance Goals. Broadly speaking, all federal agencies share some performance goals, while other goals are specific to individual agencies. The divergence of specific goals was apparent even within the three agencies participating in this study.

GPO is working with interested agencies to facilitate *permanent public access* partnerships for electronic agency information products. Permanent public access means that government information products within the scope of the Federal Depository Library Program remain available for continuous, no-fee public access. GPO also works with partner agencies to provide a full range of development and website hosting services to agencies without the necessary resources.

DTIC, because of its particular mission, aims primarily to serve the defense community, meaning the Department of Defense and its contractors; serving the general public is a secondary goal, albeit quite important. DTIC also is a center for development, implementation and hosting of websites for other DoD organizations, and also provides consulting services when requested to do so.

EIA's website serves only EIA's mission as a federal statistical agency and is not intended to service other agencies. Whereas dissemination to the general public is a secondary goal for DTIC, public access and dissemination of energy information are the primary goals of EIA, goals aggressively and purposefully pursued.

Table 4.3. Performance Measures for Federal Agency Websites

Performance Goal	Basic Measures	Other Agency Specific Measures
Extensiveness: **Amount or extent to which services are used**	-Information on content unit retrievals; e.g., no. of document downloads -No. of user sessions per time period (not no. of hits)	-No of User contact sessions -Activity levels by time periods -Ratio of unique to repeat (2 or more) user sessions per time period.
Efficiency: **Use of resources in providing services**	-Cost of providing website session per user -Percent of operational time when website is not available	-No. of FTE hours or days devoted to website creation/ maintenance by size of site in pages -Cost per user help session -Relation to diminishing costs of other publications media (e.g., printing) as indicator that website may be replacing other media.
Effectiveness: **How well the website meets the general governmental objectives and specific agency objectives**	-Completeness of coverage of agency publications, press releases, etc. -Degree to which website is increasing the timeliness of access to agency pubs	-Permanent public access to agency publications -Degree to which GILS is integrated into website design/operations -Degree to which website shows agency reaching new constituent audiences
Service Quality: **How well the website functions**	-User success rate in finding specific information in a given time period -Average time between user contact request and agency response -No. of customer complaints/suggestions and whether agency action results.	-Whether agency has Help Desk dedicated to its website -24/7 availability measures -Minimal 404 errors -Courtesy, helpfulness of user support staff -Increase in no. of repeat users per time period
Usefulness: **How well the website meets the needs of users**	-Customer comments plus surveys and focus groups -Degree to which website information increases user productivity -Degree to which website information is incorporated into other tasks inside and outside the agency	-Cognitive and Usability Evaluation -Measured user satisfaction with: *Clarity of homepage; organization of site *Timeliness of website information *Links to other useful information -No. of referrals from other websites and sources of referrals

4.3.2. Performance Measures. Table 4.3 provides selected proposed performance measures from the many available in Chapter 3 and the appendices to this report. The lists are nonexhaustive and only indicative of a range of measures that can be listed.

Performance goals, like performance measures, shade into one another. For example, the goal of effectiveness is how well the website meets the objectives of the agency. One objective of the agency is doubtless to serve the needs of its information users in the

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public, so that effectiveness blurs into the goal of usefulness. Hence, the same measure may serve as indicator for two different goals.

Table 4.3 for the most part leaves out performance measures arising from log server statistics and products such as WebTrends. Chapter 3 indicates that the participating agencies are already employing these measures to various degrees. The numbers and kinds of statistical measures from web log servers are extensive and have been adequately treated. Additional detail about log analysis techniques and issues can be found in Rubin (2000).[5]

Table 4.3 proposes sets of basic and additional performance measures and should be read in conjunction with Tables 4.1 and 4.2. The table suggests a set of basic measures and a set of other measures that agencies may choose to adopt for their own purposes.

In using the measures suggested in Table 4.3, agencies will need to carefullly define the measures, operationalize them such that valid and reliable data can be collected, and develop standardized procedures for collecting and analyzing the data needed to produce the measures. It may be desirable for an interagency working group to develop agreed upon definitions and procedures so that the statistics and performance measures can be compared across agencies.

4.4. A BEGINNING APPROACH FOR WEBSITE ASSESSMENT

This chapter presents a view of website goals and performance from three different viewpoints:

- Legal and regulatory conditions affecting federal websites, summarized in Table 4.1.
- Management and infrastructure factors pertaining to federal websites, summarized in Table 4.2.
- Performance measures, in the conventional sense of the term, summarized in Table 4.3.

In conclusion, the investigators offer the following recommendations:

4. Federal agencies should address the questions in Table 4.1 regarding agency websites. These are basic questions about whether the practices of the agencies' sites comply with federal law and policy.
5. Agencies should consider the questions in Table 4.2 as a useful but nonexhaustive checklist of infrastructure and management questions they should pose with respect to their websites.
6. Agencies should ask themselves whether their website performance measures programs address the six performance goals listed in Table 4.3 and their

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[5] Rubin, Jeffrey. Website Assessment Using Log Analysis: Issues and Techniques, in Charles R. McClure and John Carlo Bertot, eds., *Evaluating Networked Information Services*. Medford, NH: Information Today, 2000 (in press).

associated basic measures. The investigators do not necessarily recommend that websites use the exact measures listed in the table, but they do recommend that all agencies employ measures at least similar to these. The Other Agency Specific Measures are a list of metrics agencies may choose to adapt to their particular goals and purposes for their websites.

The routine use of measures described in Tables 4.1, 4.2, and 4.3 can assist agencies to improve their websites as well as meet requirements for performance assessment as stipulated in the Government Performance and Results Act. In using these or other measures, agency staff should also consider the issues raised in Chapter 5, following.

CHAPTER 5

ISSUES, RECOMMENDATIONS, AND NEXT STEPS

5.0 INTRODUCTION

As suggested in earlier chapters, a number of factors affect the successful management, operation, and assessment of federal websites. These factors raise various issues to be considered during the evaluation and assessment process of websites. Although site visits occurred only at EIA, GPO, and DTIC for this study, the investigators have visited and worked with other agencies regarding assessment of their websites.

Based on this knowledge and experience, this chapter identifies and discusses a number of key issues and recommendations that agency officials should consider when assessing their websites. The chapter also suggests some possible next steps that can be taken to continue the work reported in this study.

5.1 ISSUES AND RECOMMENDATIONS

The issues discussed here are not intended to be comprehensive; rather, they suggest important concerns that will need to be reviewed, discussed, and resolved at individual agencies. The solution to these issues is likely to vary depending on a range of situational factors in each agency.

5.1.1. Top Level Administrative Support for Website Assessment

While some ongoing assessment of selected and specific aspects of the website can be done by individuals who simply have an interest in the website, a serious effort, and one that is ongoing, requires top level administrative support. Top level administrative support means that senior agency officials commit resources, staff, and moral support to those involved in the evaluation assessment. Top level administrative support also includes administrative *interest* in the evaluation effort and the desire to obtain information and data that might be used to improve the website. Finally, top administrative support means seeing to it that someone takes as a result of the evaluation information as a means for continual improvement for that website.

5.1.2. Ongoing Program of Website Evaluation

Given the increased dependence of many agencies on disseminating information and conducting business via their website, ongoing assessment of the website is essential. An ongoing *program* of website assessment is one that minimally:

- Has assessment goals and objectives
- Assigns responsibilities to specific individuals or teams

- Operates on a schedule in which specific aspects of the website are regularly assessed
- Uses carefully selected performance measures that yield reliable and valid data
- Relates website assessment to larger agency performance assessment as prescribed in the Government Performance and Results Act
- Regularly reports assessment findings to agency decision makers and users.

One-shot assessment of selected components of a website is not a program of assessment. Agencies need to establish a regular ongoing program of website assessment that is supported by top administrative levels.

5.1.3. Organizing for Website Assessment

Agencies have a number of options for organizing and managing the website assessment process. In some instances this responsibility has been lodged in the office of the CIO; in others, made a part of the Webmaster activities; in still others, accomplished by a team or interoffice committee. There are strengths and weaknesses to each of these approaches depending on the agency, but the key point is some clearly defined management structure and one person who has responsibility for website assessment. In addition, agency staff should know who has specific responsibilities in the assessment process, and other people in the organization should know who is responsible for what tasks regarding website assessment.

The experience of the investigators is that oftentimes there are no clear lines of responsibility for websites assessment, and those assessments carried out are not made known to other agency staff. Clear reporting lines and responsibilities for web assessment are essential if successful evaluation is to occur.

5.1.4. Funding Website Assessment

The experience of the investigators is that very few agencies provide a regular budget or adequate resources to support website assessment and the development of performance measures appropriate for ongoing assessment of the website. Often, assessment costs are buried in other budget categories or are not formally made available. In other instances, evaluation occurs only because one or two staff (typically the webmaster) recognize the importance of ongoing assessment and simply "do it" despite the lack of a budget.

Agencies need to recognize that a formal program of ongoing assessment of the website will not occur, or at least will not be very successful, without resources and budgeting that supports assessment work. Website assessment requires resources and agencies must budget the resources so that those doing the evaluation can plan the approach to be used in the assessment. The size of the budget will vary from agency to agency, but a clear statement of resources needed and committed to website assessment is essential.

5.1.5. Agree on Approach and Measures

Multiple methods and approaches (log file analysis, usability, surveys, focus groups, etc.) can be employed to assess federal websites and multiple measures can be developed to describe website activities and quality. Readers should consider Chapter 4 as a starting point only. It may be less important which approach and which measures are used than it is to have agreement on a program that employs *some* approach and *some* measures to use. Thus, those responsible for website assessment should agree initially how the assessment will be done and which measures will be used.

One problem observed by the investigators in this area is that there are so many possible measures that either the staff are stymied by determining which approach should be used, or they collect an endless amount of data in hopes of producing some useful measures later. A general rule is to collect only that data that produces measures specifically related to mission critical operations and services of the website and collect only that data that will be analyzed and reported. There simply is not enough time and resources to conduct exhaustively comprehensive website assessments. Thus, consider carefully which approaches and which measures will have the greatest payback for (1) determining the degree to which mission critical goals and objectives are being met, and (2) improving the quality of services to agency users (both within and outside the government).

5.1.6. Training

To some degree, seat-of-the-pants training can develop some basic skills necessary for website development. But increasingly, staff charged with the responsibility of website assessment and performance measures development will need training in areas such as:

- Data collection techniques, e.g., survey development, focus groups, interviews, etc.
- Research methods and measurement scales and techniques
- Statistical analysis
- Report generation and use of graphics
- Use of software and technology such as log file analysis to assist in the assessments.

Other skills and knowledge are likely to be needed in the future as web technology evolves. Agencies must realize that an ongoing training process in assessment and measurement will be needed. Needs assessment of staff skills and development of a training program is an excellent starting point here. Agencies can acquire much of this training by having staff participate in activities of organizations such as the World Wide Web Federal Consortium and attend the annual FedWeb conferences.

5.1.7. Recognizing the Policy Context

A host of policy guidelines, directives, and requirements affect the manner in which federal agencies design, develop, administer, and evaluate their websites. Chapter 2 provides an overview and assessment of these policies. Many agencies simply are not aware of these policies and routinely fail to consider them as they develop and operate their websites.

At one level, failure to recognize these policies and guidelines may cause agencies to reinvent the wheel related to website evaluation. Some of these policies and guidelines (e.g., privacy protection) offer very useful information on how to design and operate the website. At another level, agencies may put themselves at risk by ignoring these policies and guidelines. Increasingly oversight efforts from Congress, the General Accounting Office, and OMB are being focused on website performance and operations at the agencies.

5.1.8. Sharing Knowledge

The investigators have observed the efforts of a number of agencies as they experiment with web assessment methods, measures, and organization to assess their website. As agencies move through this process much is learned, but much stays within the agency and is not available for others who are confronting the same issues to learn from and incorporate in their assessment efforts. Indeed, the three agencies that participated in this study were able to learn much from each other.

Agencies need to do a better job of sharing their knowledge of website assessment, letting other agencies know what works and what does not work, and offering ideas and suggestions for new approaches. As part of this study the investigators identified similar efforts to develop measures and conduct website assessments at CENDI (an interagency science and technology information group that includes Commerce, Energy, National Technical Information Service, National Library of Medicine, National Agricultural Library, Defense, Interior, and others) and from the ICSP (Interagency Council on Statistical Policy). While there are groups such as the Federal Webmasters Forum and WWW Federal Consortium that might serve as a mechanism to support such sharing of information regarding website assessment, no clearinghouse of information about methods, techniques, measures, and strategies for assessing federal websites now exists. One of the existing groups might profitably undertake establishing such a clearinghouse.

5.1.9. A Changing Web Evaluation Context

The context in which agency officials will collect, analyze, and report measures related to websites is considerably different than in the past:

- Agency staff often do not control access to and use of a range of data that describe vendor-supplied information services and resources. Some agencies contract with vendors (or other governmental units) that are unwilling or unable to provide the types of statistics and use data that officials request. Statistics and measures for database use and services, nonetheless, are essential.

- The rapidly changing technical nature of the networked environment also affects the types of services and resources that can be provided by agency websites. As the networked services change, new types of evaluation approaches and measures may be needed.
- The level of effort needed to collect, analyze, and report data to produce performance measures for web-based services may be greater than that needed to produce more traditional statistics.
- Software such as web server log analysis provides "automatic" counts and statistics of selected services and network activities. One can expect that these automatic or software-based approaches will become further refined and developed.
- Networked services, costs, and use may be difficult to "unbundle" if the agency obtains these services through a consortium of other governmental units. Costs can either be hidden or be extremely difficult to allocate to individual operations or agencies.

Agency officials may be entering a period of time where measures for website operations, use, and services may be useful for two to four years, perhaps less, and then will have to be redeveloped or discarded. Such an environment is quite different than the statistics collecting environment in which many agencies previously existed. Despite these concerns and factors, agencies can move forward and learn how best to produce and use such measures in this new environment.

5.2. NEXT STEPS

Federal agency website evaluation and development of performance measures is in its infancy and much work lies ahead in designing, testing, and implementing evaluation methods and measures. The investigators recommend two broad areas for next steps that can build upon the work described in this report.

5.2.1. Follow-on Study

The first area is to continue study on a number of topics that have been identified in this report. These topics include, but are not limited to:

- Design and test additional performance measures for agency websites
- Determine the degree to which website performance measures (as suggested in Chapter 4) can be used in agencies beyond EIA, GPO, and DTIC
- Assess organizational structure and managerial strategies as they affect website assessment
- Identify, describe, and assess costs associated with different levels of web-based services
- Integrate and coordinate various data collection methods and approaches into models of evaluation that could be used by agencies at different stages in website evaluation

- Assess the way in which agencies have complied with policies affecting website development and operation

Appendix C provides an *example* proposal for studying the degree to which agencies are complying with website policies. The investigators can also develop proposals that address other topics identified above.

An important follow-on to the study reported here would be to determine agency compliance with the various policies affecting websites as summarized in Chapter 2. Such a study would have a number of benefits for an agency, not the least of which would be overall improvement and coordination of its website procedures with the ultimate goal of better meeting user needs.

5.2.2. Disseminate Findings Widely and Increase Awareness

A second key area for next steps is to disseminate study findings widely and increase the awareness and knowledge base of agencies related to website assessment. The findings presented in this report might be best distributed by holding a government-wide conference for federal webmasters, IT systems experts, policymakers, records managers, and others. At this conference agency officials could learn about possible performance measures, assessment techniques, and new developments related to agency best practice in this area. They could also share their knowledge of assessment as done in their agencies. Such a conference would also provide an excellent opportunity for agency officials to interact and exchange views on assessment.

The report presented here might also be formally published by the GPO or another federal agency and distributed widely. As suggested earlier in this chapter, there is a dearth of information about federal website evaluation and performance measure assessment. Wide dissemination of a published report should increase attention to the topic and provide others with information that may assist them in their efforts to evaluate websites.

Finally, there needs to be better organization and sharing of knowledge related to website assessment and performance measures. An important next step would be to formally charter an agency or interagency group (e.g., Federal Webmasters Forum) to serve as a clearinghouse on information, reports, best practices, etc. related to assessing federal websites. Such an effort could have significant impact for agencies by saving them time and effort to develop and refine methods and measures that may already be known and tested.

5.2.3. Continual Improvement of Federal Websites

In the near term, it is clear that federal agencies will continue to develop and expand their web presence. Not only will a significant increase in resources and information be added to these websites, but also interactive services and e-commerce will increasingly be conducted with both citizens and with other agencies. Given the government's ongoing efforts to reduce costs and improve services, one can also expect increased policy emphasis that encourages agencies to conduct business electronically and via their websites.

Evaluation and performance measures to describe federal websites and resources in the networked environment are important tools. But an ongoing program of evaluation that regularly produces these performance measures is a tool that is essential for the long-term success of the agency. These measures provide agency decision makers with a means to:

- Describe the degree to which web-based services and resources are accomplishing agency goals and objectives;
- Assess the degree to which resource allocations for various web-based services and resources are appropriate;
- Monitor the status and development of these services so that it is possible to make quick corrective actions;
- Identify the impact, benefits, importance, and problems with web-based services and resources;
- Assist decision-makers to determine whether to continue or modify existing web-based services or develop new services;
- Provide objective information for justification of the website or otherwise demonstrate accountability for the web-based programs; and
- Educate decision-makers, staff, policymakers, users, and others as to the importance and benefits from web-based activities and services.

Perhaps most importantly, an ongoing program of evaluation contributes to the process of constant improvement – looking for ways to improve the usefulness, impact, and benefits that can result from web-based resources and services.

At issue is the degree to which these web-based resources and services are cost effective, deliver high-quality services, meet the needs of users, comply with existing policy, reduce agency costs, and help accomplish agency mission and objectives – to name a few criteria. If agencies are to operate successfully in this web-based information environment they must assess their success in addressing these criteria in a regular and ongoing program of evaluation and measurement. Developing and implementing such a program is both doable and essential if the long-term health of the website and the agency's programs are to be insured.

APPENDIX A

CRITERIA FOR THE EVALUATION OF FEDERAL WEBSITES

NOTE: *The materials in Appendix A were developed by Charles R. McClure for a class recently taught at Florida State University. This appendix represents a slightly different approach to many of the subjects addressed in this report. Nonetheless, the criteria listed here can be a useful tool to assess Federal websites. Hence, the authors have included the appendix for its potential usefulness to readers of the report.*

APPENDIX A

CRITERIA FOR THE EVALUATION OF FEDERAL WEBSITES

Introduction: Listed below are a number of possible criteria that can be used to assess websites, and to some degree, other types of electronic services provision in a networked environment. All of these criteria may not be appropriate for specific types of websites. The *purpose* of the website (e.g., educational, entertainment, commercial, services provision, etc.) shapes the *types* of crtieria that may be appropriate for a particular website.

I. INFORMATION CONTENT CRITERIA

This section evaluates the substantive aspects of the website

Orientation to website

- A website overview is provided (is it clear if this is a commercial, educational, advocacy, informational, or other type of website?)
- The scope of website is clearly stated.
- The services and information provided at the website are described.
- Instructions on the use of the website are provided.
- The purpose/mission should be appropriate to the targeted audience(s).
- A liability statement warning the user of information provided through the links is provided (e.g., access by children).
- Copyright statements are provided if necessary.

Content

- The content of the homepage should match the purpose/mission.
- The content and links match the needs of the expected audience.
- The website includes only necessary and useful information. content coverage does not overlap.
- The amount of information is significant and not overwhelming, is balanced throughout the website.
- There are full text references or other resources available.
- The content has rich and unique quality that inspires users to visit regularly for information.
- The content is written in a clear and consistent language style that matches the expected audience.
- Avoids jargon, humor, condescension, accusation, and chit chat.
- Uses a positive and professional tone.

- Language does not show bias.
- Content is organized logically throughout the website and by the user's needs.

Currency

- Address of contact person and last update information appears at the bottom of pages with substantive content.
- Pages should be kept up to date.
- The content provided by the website creators is up-to-date.

Bibliographic Control

- Headings are clearly phrased, descriptive and understandable.
- Each screen is titled clearly.
- If the headings cannot be completely descriptive, coherent and concise, descriptions follow.
- The information that is provided through the link matches the headings and descriptions.
- Terminology and layout are consistent within the headings throughout the website.
- Navigational tools standardized and on each page of site.

Services

- Provision of services is different than provision of information resources, (e.g.,leaving a question to be answered by the reference staff is a service).
- Are the services open to everyone on the Internet or do parts require fees?
- Services meet the needs of the user.
- Services are fully operational and if they cost money are the fees clearly presented?

Accuracy

- Statement of document/website status is provided (e.g., if in progress will note,"under construction").
- Reference or sources of information cited are accurate.
- Typing, spelling, and grammar errors and other inconsistencies are absent.

Privacy

- Degree to which the site provides users with explicit policy on how users' privacy rights are protected.
- Degree to which the site provides users with information about making public site-use information, repackaging, or selling such information to others.
- Can the user exchange encrypted information with the site?

Security

- Is the user assured that his/her use of the website is scure?
- Is encrypted use of the website possible?
- Are passwords needed to access certain parts of the website?

Availability of Log File Information

- Do users have access to basic statistics describing use of the website?
- What information does the website make publicly available regarding the use and assessment of the website?

Retrieval/Search Engine

- Does the website have its own search engine?
- Are their instructions to help the user better understand how to do searching on the website?
- What is the overall effectiveness, ease of use, and power of the search engine?

Policy Issues

- Written policies and procedures that govern the development, use, and access to the website (who is responsible for what, marketing, commercial use of the site, access by children, etc.?
- Use of Electronic Records Management policies that guide the management of the website (length of time material is on the website, approval for placing material on the website, legal liability, acceptable as evidence ina court of law. etc.?
- Preservation, archival, and scheduling of web content for future access and preservation?
- Privacy, FOIA, and other federal guidelines and laws?
- Degree to which organizational policies support broader institutional policies?

II. EASE OF USE CRITERIA

This section evaluates the physical movement through the website.

Quality of Links

- There are no dead-end links.
- Temporary forwarding addresses do not qualify as good links.
- "What's new" section provided for new links - (good for frequent users).
- Shortcut links are possible for frequent users.

- Warning statements are provided, if link will iead to large document or image.
- Indication of restricted access for a link is provided.
- Links are provided to mention documents.

Speed

- Minimal use of large graphics and bright colors so that document loading is relatively fast at slow connection speeds?
- Efficient programming of links for quick movement through the website?

Feedback Mechanisms

- On the homepage and other significant pages there is a contact person: name, address and email address of the responsible person or entity for example, "webadmin@library.org."
- Feedback links are fully operational.

Accessibility

- There is an awareness of the existence of this website through search engines or other publicity.
- Full name of website organization is provided in the title, heading, document address, graphical link and/or URL in order that the source can be recoverable.
- It is usually possible to reach the site. It is not frequently overloaded.
- The URL is not likely to be confused or mistyped.
- Consistent metadata embedded in pages to improve search engine indexing.

Design

- Format is appropriate to subject matter and functionality. A good design directs users toward information rather than away from it.
- The screens are uncluttered.
- The format is consistent throughout the website.
- The homepage for the website is short and simple.
- The website is written in standard HTML language. The site is consistent when accessed via different browsers (text and graphic).
- Graphics and color are used to lead the user through the information appropriately.
- Monster graphics are not used.
- Many little graphics are avoided.
- Use of bold, italics, blinking and other attention getting devices is appropriate.
- Icons are understandable and make sense as what they actually do.
- User has the option of turning off the automatic loading of graphics.

Navigability

- Essential instructions appear before links requiring user interaction (e.g., email).
- Navigation options are distinct and spelled out.
- Minimal user skills are required.
- All the parts work.
- Interactions are secured if they involve private information.
- Links are provided to return to website homepage on all supporting pages.
- Links are provided to assist navigation (e.g., "return to top," "return to previous page").

Video and Audio

- Applications on the site are appropriate.
- Applications work as intended and instructions to operate are clear and straight-forward
- Audio and video uses provide links to sites where the necessary "plug and play" software can be obtained and downloaded for immediate use.
- Enhances site performance and services and is not "glitz."

APPENDIX B

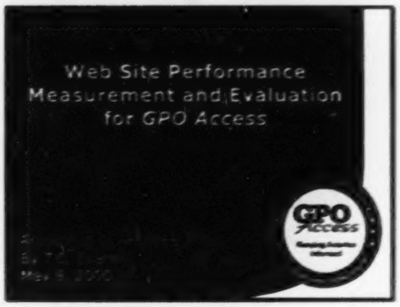
WEB SITE PERFORMANCE MEASUREMENT AND EVALUATION FOR GPO ACCESS

A PowerPoint presentation by

T.C. Evans

Given at FedWeb 2000

Slide 1



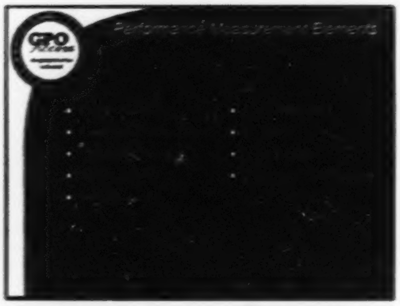
Web Site Performance Measurement and Evaluation for GPO Access

May 6, 2010

Slide 2

Purpose of Presentation

Slide 3



Performance Measurement Elements

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Slide 4

Slide 5

Original Mandate for GPO Access

Slide 6

Performance Measure

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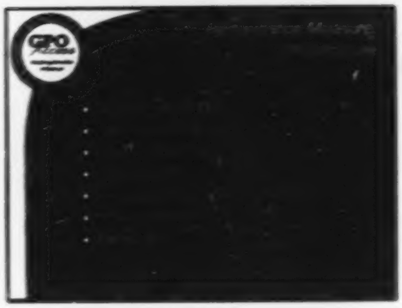
Slide 7

Slide 8



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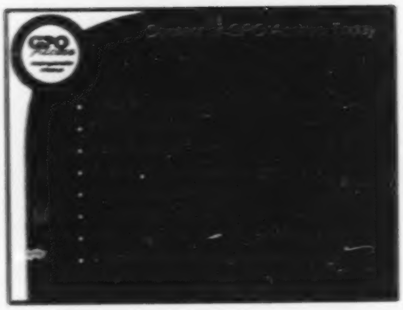
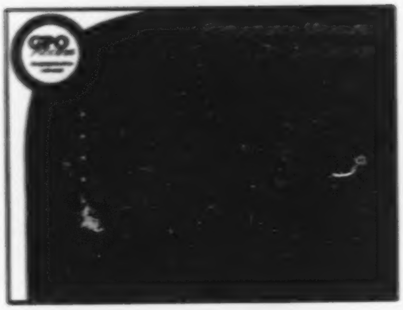


Slide 12



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Slide 13

GPO Access Site Design

Slide 14

Performance Measure:
User Support

Slide 15

GPO Access User Support

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Slide 16

Performance Measure: Awareness

Slide 17

GPO Access Awareness Efforts

Slide 18

Performance Measure: Usage Metrics

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Slide 19

GPO Access Usage Metrics

Slide 20

Performance Measure:
Customer Satisfaction

Slide 21

Customer Satisfaction and GPO Access

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Slide 22

Evaluation of Performance Measures

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APPENDIX C

EXAMPLE: PROPOSAL TO STUDY AGENCY COMPLIANCE WITH FEDERAL WEBSITE POLICIES

APPENDIX C

Example: Proposal to Study Agency Compliance with Federal Website Policies

Study Objectives

The overall purpose of the proposed project is to better understand the degree to which Federal agencies are aware of and have responded to current information policies that affect the management and operation of Federal websites. More specifically, study objectives include the following:

- Determine the degree to which a selection of agency web managers and related staff are aware of the various information policies affecting the operation and management of these websites.
- Determine the degree to which a selection of agency websites have responded to and complied with these various information policies in the management and operation of their websites.
- Assess the degree to which the various information policies actually assist agencies in operating successful websites and propose possible policies that should be considered for improved management and operation of their websites.
- Make specific recommendations to the agency as to how its websites might better respond to and address the various information policies currently in place.

Ultimately, the study will assist agencies to determine how well they are responding to the existing information policies that affect the operation and management of Federal websites and improve the usefulness, impact, and management of those websites.

Timeline and Tasking

The study would be a five to seven month effort depending on the depth of investigation require by an agency or group of agencies. It would have the following general phases and tasking:

Phase I: Project Organization (one month). In this first phase the investigators will develop detailed project tasking. They will meet with appropriate agency staff to obtain a better understanding and knowledge of their websites. Agency staff will provide the investigators with a range of internal documents and reports related to their website management. The investigators will (with the assistance of agency staff) identify a sample of agency websites to be used for the assessment. And the agencies each will establish a single point of contact for the study as well as a small advisory committee that can assist in study activities and logistics.

Phase II: Data Collection (two-four months). During this phase the investigators will use a range of methods to obtain data that will answer the study objectives outlined above. These methods may include interviews with key informants at participating agencies; log analysis; policy analysis; surveys; focus groups; usability assessments; and content analysis of websites. The investigators will provide a draft report of preliminary findings at the conclusion of this phase.

Phase III: Final Report, Recommendations, and Dissemination (two months). Based on the findings from the data collection, the investigators will produce a final report that will summarize the degree to which the websites successfully respond to the information policies as outlined in Chapter 2. The report will also offer specific recommendations for (1) how these policies might be improved, and (2) how the agency can better utilize these policies for improved management and operation of their websites. The investigators will also, with the assistance of participating agencies, disseminate project findings and recommendations within the agency and the larger Federal community via an Executive Briefing session.

These proposed Phases and general tasking are likely to be modified and refined to best meet the needs of the participating agencies during Phase I of the study.

Budget

The investigators propose a project budget in the range of $60,000 - $75,000 for this five-seven month study. McClure and Sprehe, as Co-Principal Investigators would contribute a predetermined number of days per month on the project. They would hire additional staff, 2-3 graduate research assistants at 20 hours per week. Other resources would be used for travel, communications, supplies, copying, etc. This budget assumes that agency liaisons will be able to work with the investigators and can draw upon some assistance from agency staff in the completion of the study.

Study Products

A number of study products will result from this effort, including:

- A final report that offers specific recommendations to the participating agencies on how they might better respond to and comply with various information policies for improved management of and services from their websites.
- The report will also provide a set of procedures that the agencies can use in the future to develop an ongoing program to insure adequate awareness of and compliance with new information policies affecting website management and operation.
- A revised and expanded Chapter 2 (*Information Policies Affecting Federal Websites*) based on the findings from the study.

- An Executive Briefing session for selected agency officials that would increase agency knowledge of policies affecting the management and operation of Federal websites and how those websites might be improved.

These products provide an important set of tools and strategies by which agencies can continue to improve and develop their websites.

Importance of the Study

The investigators' work in Chapter 2, *Information Policies Affecting Federal Websites* will provide an important tool to agencies that can assist them to better manage and operate their websites – and be in compliance with the existing policies affecting website management. The procedures and findings from the study are also likely to benefit other agencies that are learning how to deal with the various information policies affecting website development.

In addition, the study will significantly raise the visibility of the importance and use of agency websites. The project will also demonstrate how agencies are taking a leadership position in addressing the range of Federal information policies that affect website management and operations. Finally, and perhaps most importantly, the study will result in agency websites that are more successful in meeting agency mission and goals, more successful in meeting user information needs, and more successful in how they are managed and operated.